Chicken Boneless

Chicken Boneless is a fast-paced arcade shooter in the endless runner genre, where players aim to achieve the highest score possible. Upon loading the game, players are greeted by the main menu, which offers options to view high scores, read the game instructions, or jump straight into the action.

When the game begins, players take control of a chicken that can move freely in eight directions: up, down, left, right, and diagonally (up-left, up-right, down-left, down-right). The chicken starts at the center of the screen, while various enemies spawn and begin to chase.

There are three types of enemies in the game: dogs, cats, and humans. Dogs and cats move at varying speeds and in random directions, while humans move more slowly but deliberately target the chicken's position, making them a persistent threat.
The chicken is armed with a bone, which can be fired to defeat enemies and earn points. Defeating human enemies rewards the player with a special "spin-bone" power-up. Once collected, the spin-bone grants double points for the next 5 seconds, increasing the intensity of the gameplay.

The game is designed to be endless, challenging players to dodge enemies using their full range of movement and skillfully eliminate threats with the bone weapon. The objective is to survive as long as possible and rack up a high score.

If an enemy manages to catch the chicken, the game ends, and the chicken humorously transforms into "Chicken Boneless."

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Copyright Information

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Version	Date	Author(s)	Changes
1	January 15, 2025	Teerapath Keawratana	
2	February 14, 2025	Teerapath Keawratana	1. Character of chicken, cat, and human. 2. Background picture in Game. 3. The cut Scene.
3	April 11, 2025	Teerapath Keawratana	1. Overview 2. Character Design 3. Mechanics 4. Screen Flow 5. Control System 6. Story, Setting and Character

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1. Section I - Game Overview

1.1. Game Concept

The concept of this game is from a restaurant that has a promotion for All-you-can-eat Chicken Boneless, many customers would like to eat Chicken Boneless. That would be an idea to create this game with the main actor as chickens have to escape from all enemies (dogs, cats, and humans). The chicken's weapon is bone, which is thrown to eliminate the enemy. When the chicken was caught, it would turn to be chicken boneless, and the game would end.

The chicken boneless game makes the player emotional because the chicken boneless game has a high score record, which makes players want to keep their name on the top of the recording and makes them always keep breaking the record, or if the other player can break their high score, it makes the player want to bring that position back.

1.2. Design History

Design background of menu scene, leaderboard background scene, and gaming background scene.
Design characters of the chicken, bone, dog, cat, and human.

1.2.1. Background Design

- **Menu Scene**
  A cheerful farm setting with bright, cartoonish aesthetics. The background includes:
    - A blue sky with fluffy clouds.
    - A green field with a tree, bushes, and a winding dirt path.
    - A barn (red color) symbolizing the main gameplay area.
    - A windmill and picket fence enhance the rural farm vibe.

- **Leaderboard Background Scene**
  A lush green grassy field creates a fresh and lively atmosphere.
- **Gaming Background Scene**
  A lush green grassy field creates a fresh and lively atmosphere.

1.2.2. Character Design

- **Chicken (Player)**
    - Cute cartoon-style chicken with a slightly rounded body.
    - Expressive eyes for reactions (normal, scared, victorious).
    - Feathers flutter while moving, with slight bounce animation for idle state.
    - When caught, it transforms into a "Chicken Boneless" with animation.

- **Bone (Weapon)**
    - Cartoon-style bone with light shading.
    - When shot, spins while flying.

- **Dog (Enemy)**
  - o   Medium-sized farm dog with a playful but slightly aggressive look.
  - o   Fast run animation.
  - o   Color palette: Brown and white patches.
- **Cat (Enemy)**
  - o   Sleek, mischievous cat with sharp eyes.
  - o   Agile running animation.
  - o   Color palette: Yellow.
- **Human (Enemy)**
  - o   Cartoon restaurant owner character.
  - o   Slow but steady run animation focused directly on the chicken.
  - o   Slightly exaggerated angry expression for humor.

1.3. Feature Set

The high score tracking is one of the features set in the game to make players feel more attracted and challenge them to keep their name on the leaderboard.

1.4. Genre

Arcade, Shooting game.

1.5. Target Audience

Casual Gamer, Competitive Players.

1.6. Game Flow Summary

The player can control a chicken by using the arrow on the keyboard or ASWD to control left, down, up, and right. Use a mouse to shoot the bone to the enemy.

1.7. Look and Feel

The game is a 2D game, making the background of the game in the restaurant, and the player feels like the chicken is running away in the restaurant and doesn't want to be a boneless chicken.

1.8. Project Scope

The chicken boneless game is a 2D shooting arcade game with a high-score leaderboard.

1.8.1.   Number of locations

One location is the farm behind a restaurant.

1.8.2.   Number of levels

There is no level exactly, but when players play the games longer, the games will spawn more enemy

1.8.3.   Number of NPC's

There are three Non-Playable Characters.
The dogs will run in-game at a normal speed but with no direction.
The cats will run in-game faster than the dogs with no direction.
The humans will run at the slowest speed with a direction focused on the chicken.

1.8.4.   Number of weapons

One weapon that the chicken uses to destroy an enemy is chicken bone.

2.   Section II - Gameplay and Mechanics

2.1. Gameplay

2.1.1.   Game Progression

When the game starts, the player controls a chicken to escape from an enemy (dogs, cats, and humans). Then, the player can shoot bones to destroy an enemy and collect a score. The game will spawn more energy when the player gets a higher score.

2.1.2.   Mission/challenge Structure

The game's mission is for the player to control a chicken to escape from dogs, cats, and humans that appear in the game. They must shoot them with a chicken bone to collect more scores and keep their name on the leaderboard.

2.1.3.   Objectives – What are the objectives of the game?

Keep chickens safe for as long as possible and earn as much score as possible.

2.1.4.   Play Flow – How does the game flow for the game player

The player can control a chicken in the game to escape an enemy and shoot an enemy to keep a higher score.

2.2. Mechanics

The game operates within strict window boundaries to maintain gameplay clarity. All game entities, including the player, enemies, and projectiles, must always stay within the window frame. When enemy characters like dogs or cats collide with the window edges, they will reflect in the opposite direction while maintaining their speed, creating dynamic movement patterns. However, if the player-controlled chicken hits the edge of the window, its movement will stop immediately at that position, requiring the player to change direction to continue moving.

Players control the chicken character using either the **W, A, S, and D** keys or the arrow keys for directional movement. Attacks are performed by aiming at the mouse and clicking the left mouse button to shoot bone projectiles. To assist with precise aiming, a cross-arrow target is displayed on the screen, allowing the player to clearly see the shooting direction and adjust accordingly.

Enemy dogs and cats spawn at random positions within the game window and move unpredictably with random velocities and directions. These enemies follow the same boundary rules, bouncing off the window edges to keep the gameplay space active and engaging. Human enemies also spawn randomly, but their behavior is more advanced. They use a basic AI system to consistently follow and pursue the player's chicken at a steady speed, adding a layer of challenge and urgency.

When the player successfully eliminates a human enemy, a special power-up called the **Spin-Bone** appears at the defeated enemy's location. Collecting this power-up grants the player double points for each enemy defeated within the next five seconds, encouraging aggressive and strategic play during this time-limited bonus period.

The aiming system is enhanced by the cross-arrow target, which visually indicates the direction of the player's shots. Players can move this target with the mouse to adjust their aim and precisely direct their bone projectiles at the incoming enemies.

2.2.1. Physics

The game implements simple yet effective physics to ensure responsive and predictable interactions between all game elements. Enemy characters such as dogs, cats, and humans are programmed to move at a constant speed. While their velocity remains unchanged, their movement direction is influenced by collisions with the boundaries of the game window. When an enemy collides with the edge of the window, it instantly reflects its direction to the exact opposite side while maintaining its original speed. This creates continuous and dynamic movement across the play area, keeping the action lively.

For the aiming and shooting system, vector normalization is applied to the direction of the crosshair target. This ensures that the player's shooting direction remains accurate and consistent, regardless of the position of the crosshair on the

screen. By normalizing the vector, the length of the direction vector is fixed, preventing excessive or infinite range of projectile travel. This allows for fair and predictable bone projectile behavior, giving the player clear control over their shots while maintaining balanced gameplay mechanics.

2.2.2. Movement

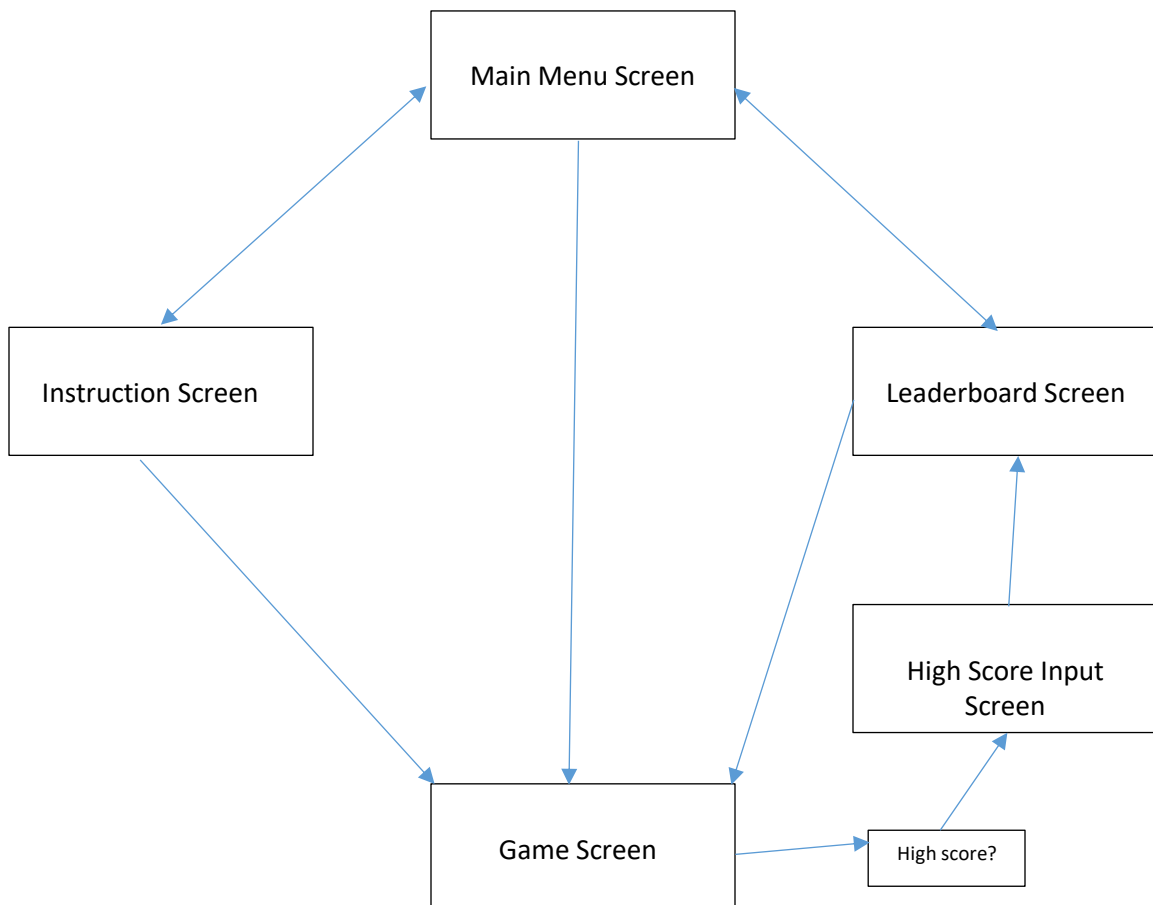### 2.2.2.1.   General Movement

The player can use an arrow on the keyboard to move or use A-left, S-down, E-up, and D-right. And use the mouse to click left to shoot the bone weapon.

2.2.2.2.   Other Movement

The dog and cat will move at a constant speed in a random direction. The human will move slower, but the direction follows the chicken.

2.3. Screen Flow

2.3.1. Screen Flow Chart

2.3.2.   Screen Descriptions

The Main Menu Screen allows the player to choose to see the leaderboard screen or start the game on the game screen. If the player goes to the leaderboard Screen, they can only return to the Main Menu Screen.

When the player goes to play the game on the Game Screen and loses the game without reaching a high score, the game screen will return to the Main Menu Screen. But if the score reached a high score, the High Score Input Screen would appear to make the player input their name. After the player finishes inputting the name, it will go to the Leaderboard Screen and back to the Main Menu Screen again.

2.3.2.1.   Main Menu Screen

The Main Menu Screen is like the home screen that the player must return to every time after playing or watching the leaderboard.

2.3.2.2.   Options Screen

The Game Screen is the scene where the player plays the game and has fun with the chicken boneless game.

The High Score Input would be shown to the player only when the player finished the game with a high score.

The Leaderboard Screen is used to show the player to watch the high score ranking and only go back to the Main Menu Screen.

The Instruction Screen is used to show the player how to control the chicken and how to play the game.

3.   Section III – Story, Setting and Character

3.1. Story and Narrative

3.1.1.   Back story

Start at the restaurant that cooks boneless chicken but has one lucky chicken trying to escape from that restaurant but is still stuck in the green field behind the restaurant. It's trying to run away from dogs, cats, and humans, and they are trying to catch it.

3.1.2.   Game Progression

When the player plays the game longer, the game will make more enemies on the screen to challenge the player.

3.1.3.   License Considerations

The background picture of the Game, Main Menu, and Leaderboard Screen. The Sprite of a chicken, dog, cat, and human are license considerations.

3.1.4. Cut Scenes

3.1.4.1. Cut scene #1

At loading the game, in the Main Menu Screen

3.1.4.1.1. Actors

The Chicken

3.1.4.1.2. Description

The chicken character is depicted with a cheerful and smiling expression, conveying a sense of happiness and relief, as if it has successfully escaped from the restaurant. This visual design choice reinforces the game's lighthearted tone and provides positive emotional feedback to the player.

3.1.4.1.3. Storyboard

The chicken character initially escapes from the kitchen inside the restaurant, believing it has reached safety. However, it soon realizes that it remains within the green field located behind the restaurant. Faced with continued danger, the chicken must resume its escape, navigating new threats and obstacles in its quest for freedom.

3.1.4.2. Cut scene #2

At the conclusion of the game, if the chicken is caught by an enemy, the game transitions to the ending sequence. This outcome signifies the player's failure to evade the pursuing threats, marking the end of the current play session.

3.1.4.2.1. Actors

A chicken

3.1.4.2.2. Description

Upon being caught by an enemy, the chicken character undergoes a transformation into a "chicken boneless," signifying its defeat. This event serves as a pivotal moment in the game, reinforcing the consequences of failure and marking the end of the current playthrough.

3.1.5.2.3 Storyboard

At the end of the game, if the chicken is caught by the enemy, it is transformed into a "chicken boneless" within the restaurant. This transformation marks the player's failure to successfully escape, concluding the game with a final defeat sequence that highlights the consequences of being caught.

3.2. Game World

3.2.1. Area #1

The background of the game screen

3.2.1.1.   General Description

The game screen is set in a farm field located behind the restaurant. This environment serves as the primary backdrop for the player's escape, featuring expansive green fields that contribute to the game's visual aesthetic and atmosphere. The field adds an element of openness and contrast to the enclosed spaces of the restaurant, enhancing the sense of freedom and urgency as the player navigates the area.

3.2.1.2.   Physical Characteristics

The game is set against a lush green grassy field behind the restaurant, creating a fresh and lively atmosphere. The vibrant landscape enhances the visual appeal of the environment, contributing to a sense of openness and tranquility, while still maintaining an underlying tension as the player navigates through the field in pursuit of freedom.

3.3. Characters

3.3.1. Character #1

Chicken

3.3.1.1.   Back story

The chicken initially escapes from the kitchen and flees into the green field behind the restaurant, believing it has reached safety. However, it soon discovers that it remains within the same field, still in proximity to the restaurant, and must continue its escape to avoid capture. This realization adds a sense of ongoing danger, reinforcing the need for the player to keep moving and remain vigilant.

3.3.1.2.   Personality

A happy chicken, but easy to panic.

3.3.1.3.   Special Abilities

A chicken can use bone as a weapon.

3.3.1.4.   Relevance to game story

The main actor in the game.

3.3.2. Character #2

A dog in the dining room

3.3.2.1. Back story

A dog suddenly bursts into the green field behind the restaurant upon spotting the chicken. Its instincts kick in, driven by the sight of the chicken, and it begins to chase after it with the intention of catching and eating a boneless chicken. The scene becomes tense as the chicken, aware of the impending threat, must quickly navigate the field to evade the dog. The dog's pursuit adds an element of danger and urgency to the gameplay, forcing the chicken to react swiftly, adding excitement and a sense of challenge as the player helps the chicken escape.

3.3.2.2. Personality

Hungry dog, running without direction

3.3.2.3. Relevance to game story

The one out of three enemies of the chicken.

3.3.3. Character#3

A cat in the green field area located behind the restaurant.

3.3.3.1. Back story

A cat character dynamically enters the green field area located behind the restaurant. Upon spotting the chicken character, the cat initiates pursuing behavior, driven by its instinctual desire to catch and consume the boneless chicken. This interaction introduces an element of threat and urgency to the gameplay, encouraging the player to evade the approaching enemy.

3.3.3.2. Personality

The hungry cat exhibits erratic movement patterns, running aimlessly without a fixed direction when it is not actively pursuing the player. This behavior reflects the cat's restless and unpredictable nature while searching for its target, adding an element of dynamic unpredictability to the game environment.

3.3.3.3. Relevance to game story

An additional enemy type is introduced as a fast-moving predator. This enemy moves at a higher speed than the dog enemy but maintains an erratic, non-directional movement pattern. Its unpredictable and rapid motion increases the challenge for the player by creating a heightened sense of urgency and requiring quick reactions to avoid contact.

3.3.4. Character#4

The Human is a dangerous adversary to the chicken. Although it has the slowest movement speed among all enemies, it consistently moves directly toward the chicken, maintaining focused pursuit.

3.3.4.1.   Back story

The restaurant owner saw the chicken run into the green field behind the restaurant, and he wanted to catch the chicken back in the kitchen.

3.3.4.2.   Personality

A patient restaurant owner.

3.3.4.3.   Relevance to game story

The dangerous enemy of a chicken, even though slowest, has a focusing direction on a chicken.

4. Section V - Interface

4.1. Control System

The player interacts with the game using both the keyboard and mouse. The control scheme is as follows:

- **In-Game Controls:**
  - **Movement:**
    The player can navigate the character using either the **A**, **S**, **W**, and **D** keys or the **arrow keys** on the keyboard.
  - **Attack:**
    The player can initiate an attack by clicking the **left mouse button** to shoot bones at targets within the game environment.
- **Menu, High Score, and Instruction Scenes:**
  - **Start Game:** Press the **D** key to begin gameplay.
  - **Exit to Previous Scene:** Press the **ESC** key to exit the current scene.
  - **View High Scores:** Press the **H** key to access the High Score scene.
  - **View Instructions:** Press the **I** key to access the Instruction scene.

4.2. Audio

The game features dynamic audio feedback to enhance player immersion. Specifically, a running sound effect is played whenever the player moves the chicken character in any direction, including **up**, **down**, **left**, or **right**. This auditory cue provides immediate feedback corresponding to player movement inputs.

4.3. Music

Exciting music during game running.

4.4. Sound Effects

When a chicken shoots bone at the enemy, there is a collision between the chicken and the enemy.

5. Section VI - Artificial Intelligence

5.1. Enemy AI

The Human enemy's behavior system includes a function that directs its movement toward the player character at all times. This ensures the Human consistently follows the chicken's position. Furthermore, the enemy's sprite animation is designed to flip horizontally when changing direction, visually indicating the shift in movement and maintaining consistency with player perception.

6. Section VII – Technical

6.1. Target Hardware and operating system

Windows 11

7. Section VIII – Game Art

This section showcases the concept art for the game's main characters and enemies. Each illustration serves as a visual reference for the art direction, ensuring consistency in character design and visual storytelling throughout the development process. The concept art reflects the intended personalities, behaviors, and roles of each character within the game world.

7.1. Concept Art

Chicken

The chicken is the primary character and protagonist of the game. The design emphasizes a lively and slightly comical appearance, highlighting the chicken's agility and mischievous nature. Bright colors and expressive animations are used to convey a sense of urgency and playfulness as the chicken attempts to evade capture.

Cat

The cat serves as one of the agile enemies within the game. The concept art presents the cat with a sleek, nimble design, showcasing its quick reflexes and unpredictable movements. Visual elements such as sharp eyes and dynamic poses reflect the cat's opportunistic behavior as it pursues the chicken.

Dog

The dog enemy is depicted as a powerful and fast pursuer. The concept art emphasizes the dog's strength and determination through a sturdy build and focused expression. Its design balances speed and aggressiveness, reinforcing its role as a relentless chaser in the gameplay.

Human

The human character represents the most dangerous threat to the chicken. The concept art portrays the human as a determined figure, equipped with purposeful movements and a clear focus on capturing the chicken. Visual cues, such as posture and animated expressions, highlight the human's intent and persistence. Additionally, the animation design includes directional flipping to visually indicate changes in movement direction.

7.2. Characters
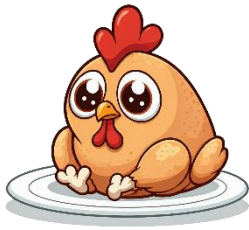
The Chicken boneless   The chicken   The human

The dog   The cat

7.3. Environments

The vibrant green background provides a sense of freshness and positivity, in the top view.

7.5. Cut scenes

The Chicken throws a bone at a cat scene.

7.6. Reference

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