Maniacally Obese Penguins, Inc.

FLAUNCY SPACE COWS

Design Document

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Game Title

Flauncy Space Cows

I. Section 2: Overview

A. The general idea:

A small forest elf named Flauncy must fly around in space, shooting Space Cows, Pigs, and Chickens and avoiding collision with them. Cows, upon being shot, explode into two Pigs, which when shot become two chickens. Chickens, when hit, disappear

B. Gameplay Mode:

Setting: Deep in space, with no interference of gravity, friction, or planets.

Perspective: A 2-dimensional "overhead" view.

Interaction model: User accelerates using the up arrow, and spins using sideways arrows. Spacebar shoots pellets or some variation thereof. Action is wrap-around (ie, exiting the screen sends the player to the other side).

Challenges: Each increase in level involves a larger number of cows entering the screen, and a slight increase in the animals' velocity.

Actions: Player maneuvers through the cow field, avoiding collisions while shooting various farm animals.

II. Core Features

User Interaction Framework:

Involves the main event loop and results of keystrokes.

Physics Engine:

A basic set of variables and functions that allow for motion and acceleration of objects. The engine must have enough flexibility to be used for the animals, Flauncy, and the ammunition.

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Graphics Elements:

The background, Flauncy, and animal pictures that will make up the look of the game. Some form of indication of Flauncy's acceleration will also be necessary (for example, fire coming from behind him). Any extensions of ammunition or protective fields must also have an associated graphic, but the basic pellets can be formed by simple moving points.

Collision Detection:

The game requires a way of easily checking for collisions between Flauncy and the animals which will cause a loss of life or health. Also, pellets must be checked for collision with animals so that the animals can explode.

Scoring System:

There must be a way of keeping the score of a player. Eliminating animals will increase points, while points could possibly be removed as time passes, adding an element of time pressure to the game.

Level Incrementing:

Once all animals have been removed from the screen, the player must be raised a level and restarted with more, faster-moving cows. There will be no limit to how high of a level the player might reach.

Ship, Animals, and Pellets:

Each of these elements will require a well-implemented functionality that allows for easy game extensions and commands. The elements themselves will do most of the work of the game, including collision detection, motion, etc.

Opening Screen:

This will be a particularly well-designed screen that introduces our corporation and gives a short game title and description.

Quit/Pause Options:

We will want to make sure that the player is able to pause action or exit when desired.

Sound Effects and Music:

Background music, possibly that changes with each level, as well as sound effects for collisions and shots fired. There will possibly be an effect for the acceleration of the ship as well.

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III. Secondary Features

Changing Backgrounds:

Have several backgrounds that cycle as each level is passed. More backgrounds is best, so as to prevent most players from seeing the same ones multiple times.

High score List:

Have a method for storing the high scores so far on the computer and for updating at the end of a game, whether it was quit or ended due to loss of life.

Health Meter:

Rather than having multiple lives, implement a health meter that can be restored using the flying veggie-burgers that will come across the screen every so often.

Armor and Weapons Upgrades:

This will incorporate some form of money flying across the screen, and a shop that is available between levels where extra tools are available. Some possibilities:

–Strong weapons that skip a level of the size of the animals
–Force fields for some temporary protection
–Brakes to enable slowing down

This particular addition will also require a more advanced user interface, as different buttons must be used to launch the special weapons.

Animations:

Animations will include possibly more drastic explosions, maybe movement in the animals or animation of the fire that accelerates Flauncy.

Multi-player Option:

Add the possibility of having two players battling each other or working together against the animals. This is also a significant addition, as new keys must be added for the second player and simultaneous computations are now necessary.

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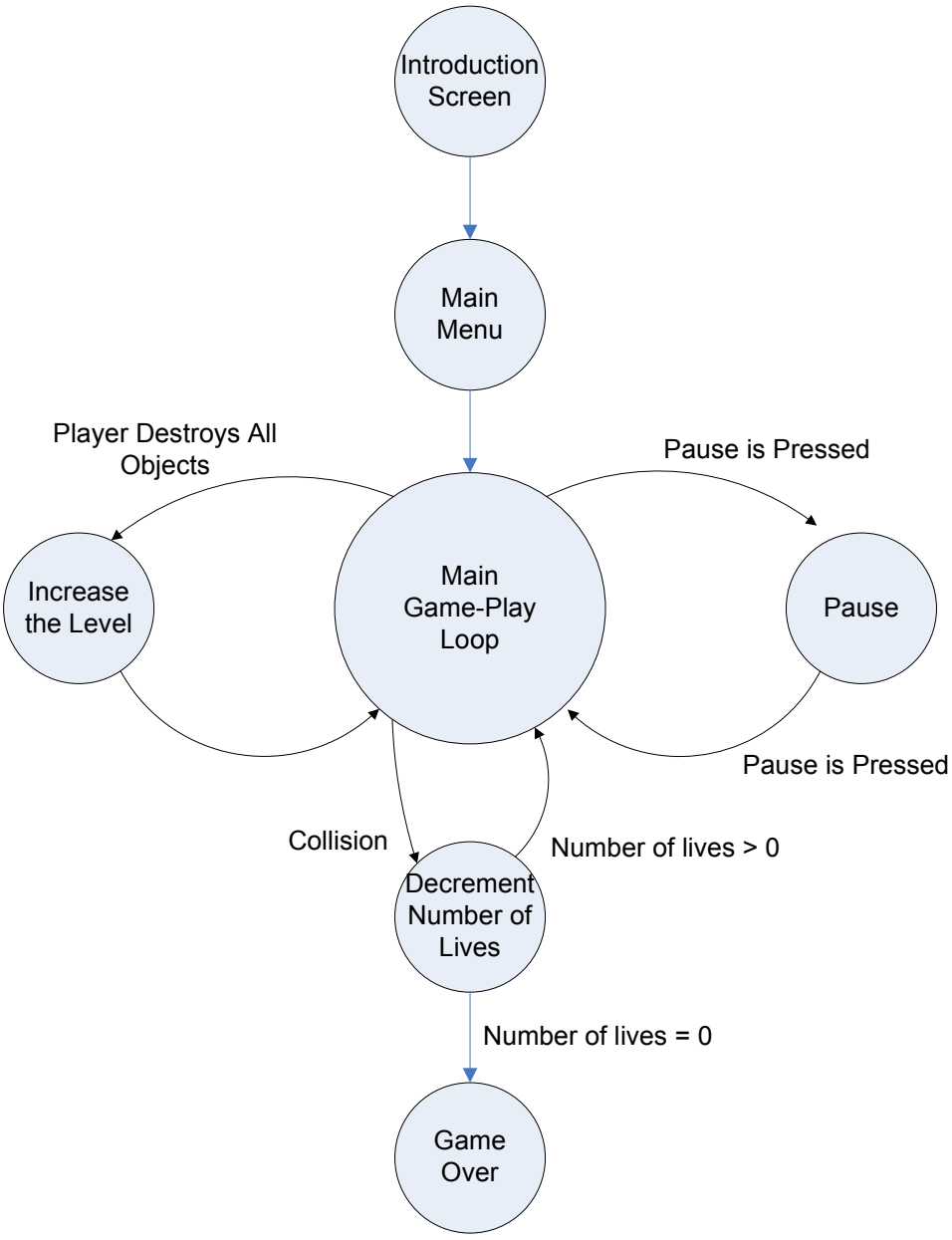
IV. State Diagram of Game play

A. Figure 5.1 High Level State Diagram for Flauncy Space Cows



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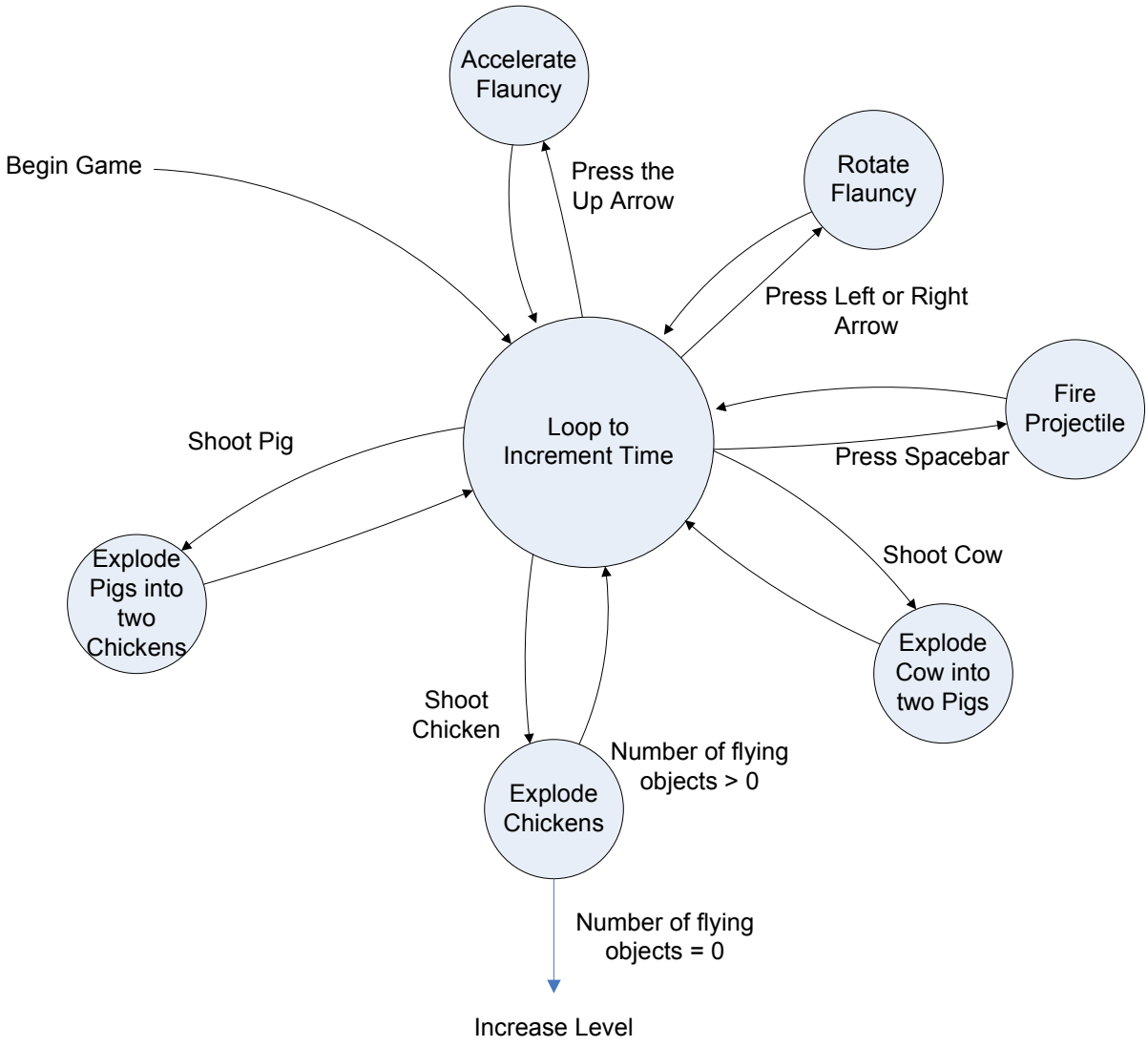
B. Figure 5.2 Low Level State Diagram for Flauncy Space Cows Main Game-Play Loop



V. Internal Economy

Lives/Health:

Each player will start with three lives and a full health bar. As the player is hit by animals the health bar will decrease. The size of animals will determine the amount oh health lost, so cows will deplete your bar more than chickens. Once you health bar is fully depleted your elf will explode and you will lose a life.

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Ammo:

The ammo will be infinite and can be fired constantly with a slight delay in each pellet shot.

Money:

Money will be a secondary feature in the game and will be awarded to the player each time they fully destroy a com, pig, chicken combination. Money will be able to be spent at the end of each level for a more durable ship that will take less damage with each hit. New lives will also be able to be bought with this money.

VI. Game Balance

Positive feedback:

It will be awards to the player each time they hit an animal or complete a level. The forms of positive reinforcement will be points and money. Health will be increased as money as spent.

Negative feedback:

The main form of negative feed back will come from hits with the animals, which will lead to loss of the health bar and finally an explosions that will cause lose of a life.

Adjusting the game's difficulty:

The game difficultly will not need to be adjusted. The levels will start out fairly easy and will get progressively harder.

VII. Victory Conditions

Winning the game:

There will be no way to actually win the came, the point is just to accumulate the most amount of points possible before you die. The levels will simply get harder and harder until they are basically impossible. At some point every player will die.

Losing the game:

The game will end when all of the player's lives run out. At this point the players score will be displayed and they will have the option to play again.

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VIII. Interface Design:

A. Figure 9.1 Startup Screen

When the game opens, this screen will appear, and instructions will appear to the effect of "hit enter to play." If the secondary features are implemented this screen will also include option buttons.

B. Figure 9.2 Primary Mode Screen

This screen will be the primary location for game play. Flauncy will fly around, shooting at an array of space animals. The animals will be flying as well, independent of the motion of Flauncy. There are options to pause and exit, and a score counter in the upper right corner.

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C. Figure 9.3 Level Change Screens

After the screen is cleared of farm animals, this screen will appear telling the player to prepare for the next level of game play.

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