

# **Zaxxon 2.0**

## **COL701 Assignment 2 Report**

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### **Introduction**

Zaxxon 2.0 is an upgraded modification of the famous Zaxxon of 1982 single-player, shooter arcade game in which the player pilots a ship through heavily defended space military environment. The game gives the player an experience of flying a fighter craft through a fortress while shooting at enemy entities. The plane has different positions while steering which gives the feeling of really controlling the plane. Also while descending or ascending, the shadow of the plane on the surface would add up to the feeling of actual depth. These little details but also the sound effects make Zaxxon 2.0 a true legendary game.

### **Game Objective**

The Fighter-Plane has 3 lives and it has to survive throughout all the 5 levels using these 3 lives. The objective of Zaxxon 2.0 is to hit as many targets as possible and score as high as possible without being shot down by the enemy-planes or colliding with obstacles or running out of fuel or running out of the 3 lives.

## **Basic Gameplay**

Movement of the Fighter-plane is left, right, up and down with smooth transitions. Left movement is using left arrow key, Right movement is using right arrow key, Up movement is using up arrow key and down movement is using down arrow key. The Fighter-plane fires bullets using the Spacebar key. When one life of the Fighter-plane is reduced, the same Level restarts and when no more lives are left, it is Game Over and Level 1 restarts again. Any dragons seen during the game will be killed with 20 bullet shots of the player's Fighter-plane. The player's Fighter-plane must keep a check on the level of fuel in the fuel tank, which can be replenished by blowing up fuel drums.

## **Modules**

This game consists of 5 levels. Levels 1 and 3 share the same layout with level 3 having higher quality of obstacles and difficulty. Levels 2 and 4 share the same layout with level 4 having higher quality of obstacles and difficulty. Level 5 has a distinct layout from the other levels. So, *this game has 3 layouts* in total.

### 1. Home screen:

This is the first screen of Zaxxon 2.0 and it consists of three options: Play, Levels and Exit. The Play option begins the game, the Levels option takes us to another screen which contains the options of Levels 1, 2, 3, 4 and 5. The player can select the Level he wants to play. Exit option ends the game.

### 2. Level 1:

Level 1 has an outer-space theme with long-runway for the Fighter-plane. It contains

stationary obstacles like rocks rotating about their own axis, cylindrical tanks and huge *walls*. Collision with rocks and walls kills one life of the Fighter-plane. Level 1 also contains *vertically positioned guns* which throw fire-balls vertically upward direction. Collision with these fireballs kills one life. Level 1 also contains moving obstacles like asteroids, mines and flying insects. They are spawned randomly in a direction opposite to the Fighter-plane. Collision with them kills one life.

### 3. Level 2:

Transition from Level 1 into Level 2 is in outer space without the runway as in Level 1. In addition to the obstacles above, Level 2 contains an *opponent-plane* which fires bullets and this plane moves in linear motion spawned randomly in a direction opposite to the Fighter-plane.

### 4. Level 3:

Transition from Level 2 into Level 3 is from the outer space to the space with ground. In addition to the obstacles above, Level 3 contains a fire *Dragon chasing the player*. This Dragon is in motion and throws fire from its mouth and has moving wings.

### 5. Level 4:

Transition from Level 3 into Level 4 is in outer space without the runway as in Level 3. Level 4 contains obstacles similar to Level 2, only the *opponent-planes* that fire bullets, and fly side-by-side and have a zig-zag motion.

### 6. Level 5:

The scene in level 5 is based on a jungle surrounded by mountains. In addition to the above obstacles, Level 5 contains War *Tanks* firing bullets in circular motion. It also contains a *Dragon chasing the player*. This Dragon is in motion and throws fire from its mouth and has moving wings. Also there is a *fireball chasing the player*.

### 7. Score indicator:

There is a *score indicator* which increments the score by 5 on collection of each *gold coin*, and increments the score when obstacles are shot by the bullet of the Fighter-plane. During transition of the Fighter-plane after every 0.3 seconds, the score is incremented by 5.

## 8. Fuel indicator:

As the Plane moves forward in the game, its fuel decreases with time. The game contains a *fuel indicator* with bar diagram and percentage. The fuel-boosters are spawned throughout the game. Once the Plane collects a fuel-boosters, its fuel-tank will get re-filled. Once the fuel is finished, then one life will be decreased.

## 9. Life indicator:

If the Fighter-Plane collides with any obstacle, its life will get reduced by one. This is shown by the *life indicator* with bar diagram and percentage.

## 10. Height indicator:

There is a *height indicator* with bar diagram and percentage which is used to indicate the ship's altitude above the surface, thereby allowing the player to control how high or low the Fighter-plane is above the surface.

# Highlights

## 1. **Highest Score**

Every game session computes the highest score and stores it. Every next attempt in playing the game will generate the current score. If the current score is greater than the highest score till now, then we update the highest score else not.

## 2. **Gold Coins**

Gold coins are spawned randomly in each level. The player's fighter plane collects them and collision with each coin increments the score by 5 points.

## 3. **Dragon's fireball chasing the player**

In the end of 3rd and 5th level we plane need to destroy the dragon with chasing fireball to clear that level.

## 4. **Enemy planes**

The second and fourth level contain obstacle planes moving zig-zag in opposite direction as the

player and firing bullets towards the player. An enemy plane requires 10 bullet shots for it to get destroyed.

## **5. Moving Tanks**

The fifth level contains 3 moving tanks firing according to the position of the player's Fighter-plane.

## **6. Animation**

Moving obstacles are added to make our game more interactive and provide 3D effects.

## **7. Sound-effects**

Background music plays as the player progresses. Each bullet shot also plays music. There is a collision sound added when the player's plane collides with obstacles.

## **8. Menu selection**

Various screens are added such as Play, Levels, Quit, Gameover message etc to make our game enhanced in interaction with the user.

## **9. Particle effects**

On every collision with obstacles, a particle effect is produced. Fireball chasing the player also produces particle effect.

## **10. Vertically positioned guns**

Fireballs are spawned in upward direction.