

# Orbit Defenders Project Planner

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Subject: Orbit Defenders [Project Planner]

## Project Overview

### Orbit Defenders

*This project is a video game to see how long you can stay alive and protect The Earth! The player must shoot the enemies before they go past them and at the same time try not to crash into your enemies. The only ways for the player to lose lives is to let asteroids pass by them or get hit by asteroids. Once the player loses 3 lives the game is over.*

## Users

### [Target Audience]

**Retro Gamers:** *This Game is 8-bit just like the old arcade games (Space Invaders).*

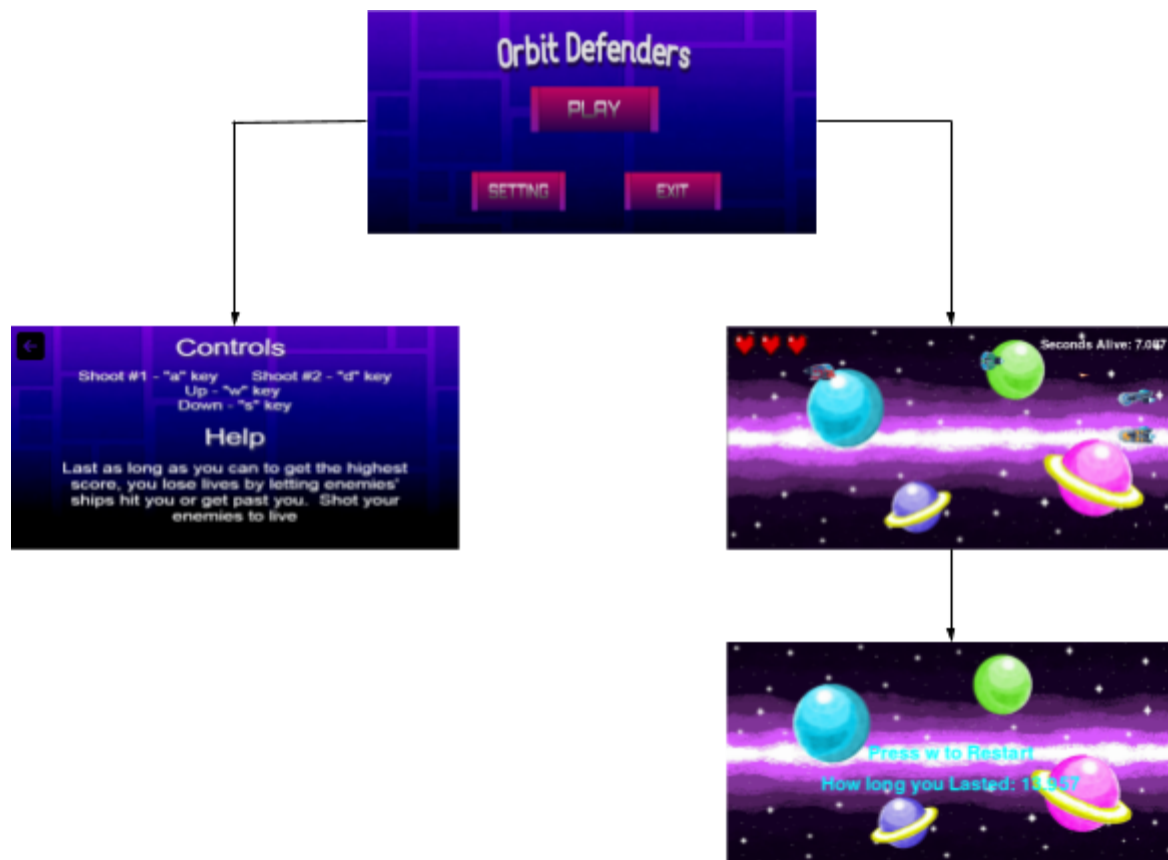
**Endless Runner Lovers:** *The game is infinite and doesn't stop until the player loses all lives (Endless Runner).*

## Instructions

*To play this game you must shoot enemy ships to survive. To spawn bullet 1 press "a" on your keyboard, to spawn bullet 2 press "d" on your keyboard. To go up press "w" on your keyboard, to go down press "s" on your keyboard.*

# Product Features

## Program Mockup Sketches



## Feature Priority List

### **(P1) Game Screen**

- (P1) User-Controlled Character (↑ - “d” Key, → - ↓“s” Key)
- (P1) Random Obstacles
- (P1) Collision Detection
- (P1) Shooting ( Bullet 1 - “a” key, Bullet 2 - “d” key)
- (P2) Game Background
- (P2) Life Display
- (P3) Time Alive Display

### **(P2) Start Screen**

- (P2) Game Title
- (P2) Play/Start Button
- (P3) Controls/Help Button
- (P4) Exit Button
- (P4) Start Background

### **(P2) Game Over Screen**

- (P2) Game Over Text
- (P2) Restart Button
- (P3) Total Time Alive

### **(P3) Help/Controls Screen**

- (P3) Help/Controls Text
- (P3) Back Button
- (P4) Controls Background

**User-Controlled Character (← - Left Key, → - Right Key, Fire - Space Bar):**

The Character that the player plays as in the game that can move

**Random Obstacles:**

Obstacles such as asteroids that need to be shot by the player

**Collision Detection:**

Collision detections for Buttons, Obstacles and Character/Player

**Game Background:**

The Setting or area of the game that is played on

**Life Display:**

The display of how many lives the player still has

**Game Title:**

The Game's Title on the Start Screen

**Play/Start Button:**

A button that starts the game

**Game Over Text:**

Text that is used when the player loses and the game over screen comes up

**Restart Button:**

Restarts the game if pressed

**Controls/Help Button:**

Brings player to the Help/Controls Screen

**Help/Controls Text:**

The text that is in the Help/Controls Screen

**Back Button:**

Brings player back to the Start Screen from the Help/Controls Screen

**Time Alive Display:**

Amount of time the game has been run without restarting / how long the player has lived

**Total Time Alive:**

Total time the player was alive for

**Exit Button:**

Exits the game

**Start Background:**

The Background of the Start Screen

**Controls Background:**

The background of the Help/Controls Screen

**Shooting:**

When presses d or a on the key a bullet comes out of the screen, 2 bullets can be shot out at the same time if player presses both keys

## Version Guide

**[This section contains a list of each program version and all the features that will be included in that version.]**

### **V1**

- User-Controlled Character
- Random Obstacles
- Collision Detection
- Game Background

### **V2**

- Game Title
- Game Over Text
- Start Screen with Play/Start Button
- Game Over Screen with Restart Button
- Life Display
- Start Screen with Controls/Help Button
- Start Screen with Exit Button

### **V3**

- Shooting
- Time Alive Display
- Total Time Alive
- Help/Controls Screen with Text
- Game Over Screen with Total Time Alive
- Help/Controls Screen with Back Button
- Controls Background
- Start Background
- Bug Fixes

# Schedule Milestones

[Identify key milestones (most practically, these are ranges initially). This is NOT meant to be a detailed schedule, just a list of overarching deadlines.]

## Version 1

User-Controlled Character  
Random Obstacles  
Collision Detection  
Game Background

## Nov 19th - Nov 30th

Nov 19th  
Nov 29th - Nov 30th  
Nov 30th - Dec 1st  
Nov 30th - Dec 1st

## Version 2

Game Title  
Game Over Text  
Start Screen with Play/Start Button  
Game Over Screen with Restart Button  
Life Display  
Start Screen with Controls/Help Button  
Start Screen with Exit Button

## Dec 2nd - 6th

Dec 2nd  
Dec 2nd  
Dec 2nd  
Dec 3rd  
Dec 3rd - 6th  
Dec 6th  
Dec 6th

## Version 3

Time Alive Display  
Total Time Alive  
Help/Controls Screen with Text  
Game Over Screen with Total Time Alive  
Help/Controls Screen with Back Button  
Controls Background  
Start Background  
Shooting  
Bug Fixes

## Dec 7th - Jan 14h

Dec 7th  
Dec 7th  
Dec 10th  
Dec 10th  
Dec 10th  
Dec 13th  
Dec 13th  
Dec 14th - Jan 10th  
Jan 6th - Jan 14th

# Reflections

## **What parts of my program differ from my original plan and why?**

The only thing that really changed was my screen layout because my original plan was to make it where the character moves from side to side and meteors would be coming down from the top of the screen but I changed that because I couldn't find any good images for meteors and any good backgrounds but, I found some good spaceship images and great background that would work if my screen was landscaped so I changed. I also didn't add power ups, sound effects or game music because I ran out of time and couldn't finish it so other than that I can't really say my program changed that much from my original plan.

## **What challenges did I encounter making this program and how did I resolve them? (With reference to code)**

I had a huge problem with my shooting code and with its spawning. What I wanted was to make it where if spacebar is pressed then bullet1 is put on screen, but if bullet1 was already on the screen and spacebar was pressed again then bullet2 is put on the screen too and cycle repeats, but I get figure out how to make it where if the spacebar is pressed again then bullet2 is put on screen. Instead though I got it where if the spacebar is pressed, bullet1 is put on the screen and less than a millisecond later bullet2 is put on screen, which I didn't want. In turn I fixed this problem by making bullet1 and bullet2 have separate keys to put them on the screen.