

# Project Design Document

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## Project Concept

1

### Player Control

You control a

*Spaceship*

in this

*top Down*

game

where

*Arrow keys*

*Power keys*

*Shoot key*

makes the player

*Move in its bottom part of the screen in all directions*

*Use power Ups and power Downs collected*

*Shoot forward in the player's direction*

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### Basic Gameplay

During the game,

*Enemies' spaceships and obstacles*

appear

*Opponent's spaceship*

Move

*points objects, power ups and downs*

Appear

from

*Center of the screen (for both player)*

*Its position, toward player's spaceship*

*Its top part of the screen*

*Its position, forward direction*

*Center of the screen (for both player)*

and the goal of the game is to

*Destroy opponent's spaceship or collect more points than the opponent player at the end of the timer of the game.*

### 3

#### Sound & Effects

There will be sound effects

*When players or enemies' spaceships shoot*

*When player's spaceship is hit by a shot*

*when enemies' spaceships are destroyed*

*When points objects are collected*

*When power ups or downs are collected*

and particle effects

*When enemies' spaceships or obstacles are destroyed*

*When player's spaceship is destroyed*

*When a point object is destroyed*

[optional] There will also be

- particle effect on spaceships engines*
- Background sound during the game*
- a scrolling background of the space*
- sound during the collection of some points object*

### 4

#### Gameplay Mechanics

As the game progresses,

*Enemies' spaceships move toward a predefined position of the screen*

*Obstacles move vertically from the center of the screen to the top/bottom side*

*Points objects move vertically from the center of the screen to the top/bottom side*

*Power ups and downs are used*

making it

*The position from where they start to shoot*

*The player could avoid or destroy them*

*The player could collect them or not*

*Add different behavior to the player's spaceship or to the opponent's spaceship*

[optional] There will also be

*A maximum number of enemies' spaceship in the screen*  
*Obstacle (meteor) rotates during their movement*  
*Cooldown when a player is hit by something, the player can't take other damages until the cooldown is finish*

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### User Interface

The	will	whenever
Score	Increase	points objects are collected by the player
Score	Increase	Enemies or obstacles are destroyed
Score	Decrease	points objects are destroyed
Lives	Increase	Special points object collected
Lives	Decrease	Enemies' or opponent's spaceship shots hit the player's spaceship
Lives	Decrease	Obstacle hits the player's spaceship
Lives	Decrease	Obstacle touch the top/bottom of the screen
Lives	Decrease	Enemies' spaceships touch the player's spaceship (by damage points)
Timer	Decrease	Every second is passed

At the start of the game, the title

Get the space title with Input controller for 2 players	will appear
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and the game will end when

Player spaceship runs out of lives or timer ends
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### Other Features

- A cooldown bar that Increases Its value when player shoots continuously
- when a player run out of lives the opponent must keep play until the timer ends, If It runs out of lives the computer wins and the 2 players lose.

## Project Timeline

Milestone	Description	Due
#1	<ul style="list-style-type: none"> <li>- Player1 movement In Its side of the screen</li> <li>- Player2 movement In Its side of the screen</li> <li>- player1 shoots</li> <li>- player2 shoots</li> </ul>	4/14
#2	<ul style="list-style-type: none"> <li>- Creation of enemies' spaceship and move them to the predefined position (for both players): spelled with 1 and 2 to understand which player side they are referred</li> </ul>	4/19

- enemies' spaceship1 shoot toward player1
- enemies' spaceship2 shoot toward player2
- destroy enemy1's spaceship when hit by player1 shot
- score1 Increase after previous point
- show score1 In the UI
- destroy enemy2's spaceship when hit by player2 shot
- score2 Increase after previous point
- show score2 In the UI
- destroy enemy1's bullet and enemy2's bullet when they hit the player

**#3**

- creation of obstacles and move them vertically to the top/bottom side (for both players): spelled with 1 and 2 to understand which player side they are referred
- destroy obstacles1 when hit by player1's shot
- score1 Increase after previous point
- destroy obstacles2 when hit by player2's shot
- score2 Increase after previous point
- set maxEnemies' spaceships In the game, no more enemies are created
- show lives1 In the UI
- show lives2 In the UI
- Decrease lives when:
  - A player is hit by a shot
  - A player is hit by an obstacle
  - An obstacle reach the top/bottom of the screen
  - A player hit a enemy's spaceship
- show timer in the UI
- decrease timer
- end game when timer is over
- end game when a player is out of lives
- cooldown when a player is hit, the player cannot take damage until the cooldown is finish, the player flash on and off in the meanwhile

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**#4**

- Creation of points objects and move them vertically to the top/bottom side (for both players): spelled with 1 and 2 to understand which player side they are referred
- Destroy points objects1 collected on collision with player1
- score1 Increase after previous point
- destroy points objects2 collected on collision with player2
- score2 Increase after previous point
- destroy points objects1 when hit by player1's shot
- score1 decrease after previous point
- destroy points objects2 when hit by player2's shot
- score2 decrease after previous point
- Particle effects on enemies' spaceship destruction
- particle effect on obstacles destruction
- particle effect on player's spaceship destruction
- particle effect on points objects destruction

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**#5**

- creation of power ups and downs and move them vertically to the top/bottom side (for both players): spelled with 1 and 2 to understand which player side they are referred
- destroy power ups and downs1 collected on collision with player1
- show collected power ups and downs names in the UI1
- destroy power ups and downs2 collected on collision with player2
- show collected power ups and downs names in the UI2
- manage power ups and downs behavior
- using power ups and downs1 collected with all different behavior
- using power ups and downs2 collected with all different behavior
- UI with title of the game and input controller for the two players and a button to start to play

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**#6**

- Creation of other type of enemies(scriptable object con prefab del tipo di proiettile?): missili telecomandati
- Creation of other type of enemies: con bomba
- Creation of other type of enemies: spari multipli
- Creation of other type of points: pianeta
- Creation of other type of points: astronauta
- Creation of other type of points: UFO

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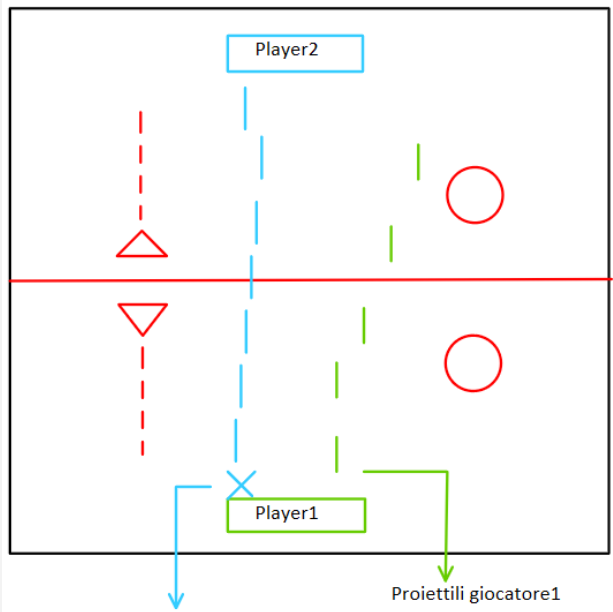
**Backlog**

- Rotation of the obstacles during their movement
- Sound on enemies' spaceship destruction
- Sound on enemies' shots
- Sound on players' shots
- Sound on players' spaceship hit by a shot
- Sound on points object collected by a player
- Sound on power ups and downs collected by a player
- Manage maximum power ups and down collected
- Create a better UI for power ups and downs collected
- lives Increase when special points object are collected
- when a player runs out of lives the opponent must keep play until the timer is over, If it loses the computer will win the game
- a cooldown bar that increases its value when player shoots continuously
- particle effect on spaceships engines
- background sound during the game
- a scrolling background of the space
- a sound during the collection of some points objects
- Feature on backlog - not a part of the minimum viable product

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# Project Sketch

2 MAPPA DI GIOCO



Divisore centrale dello schermo:  
Gli oggetti di gioco appaiono per  
entrambi i giocatori nella stessa  
posizione

Colpito giocatore 1 con proiettili del giocatore2

Interfaccia utente della parte di schermo di 1 giocatore  
Interfaccia utente della parte di schermo di 1 giocatore

