

Game Title: Space battleship

Backstory:

After the earth militaries defending attacks from aliens for several years. Humanity obtained some basic weapon technologies such as energy shields and charging lasers from alien enemy ships and upgrade their own spaceships. The authorities decide to send their newly alien technology-equipped spaceships to scout and collect more information from the alien spaceships around their base. “Jenny” space battleship is one of the elite team “Universe Guard”, its job is flying to the universe area around the moon and trying to kill all enemies. There are some engineering robots deployed on the spaceship as well. These robots could help “Jenny” to fix his spaceship automatically. When some enemies are killed, the artificial intelligence system will scan the destroyed enemy’s ships and collect data from fights then sent it to the research center on the earth, the research center would send upgrading advice and instructions back to the “Jenny”. Once “Jenny” received instructions, they could use robots on the space battleship to upgrade it to more easily kill enemies. However, once earth militaries approach the moon further, aliens would also send more powerful spaceships to stop earth militaries. “Jenny” ‘s job will be finished once it killed enough enemies and collect enough information from battles.

Characters:

Player:



The player could manipulate a newly upgraded spaceship “Jenny” to fight with enemies, it could fire cannons and charging lasers to kill enemies. It also has a recharging energy shield that defends the attack from enemies.

Enemies:



- Suicide aircraft: fly towards to player’s ship with a rapid speed to hit the player, the player needs to dodge or kill them.



- Aircraft: fly slower than the first type of enemy, randomly fly vertically up and down. Often shoot canons one by one in a straight line, the player would take damage if the player were hit by the canon.

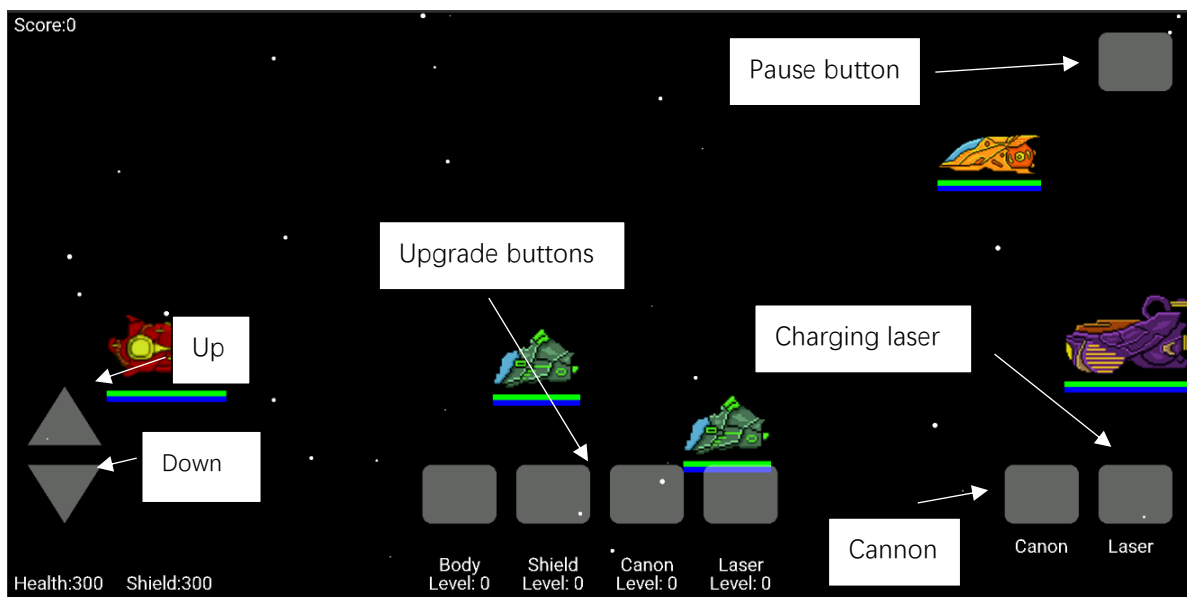


- heavy space battleship: similar to the player's one, it moves more slowly, shoots a charging laser in a straight line for a short period of time. It shoots lasers less frequently than the aircraft shoots canons but deals much higher damages, randomly flying vertically up and down.

GamePlay:

Control buttons:

- Players could pause the game and upgrade the ship.
- Up: go up in the map
- Down: go down in the map
- Fire cannon: fire a cannon, has a short period of “cooldown” time.
- Fire charging laser: fire a charging laser, has a short period of “cooldown” time.
- Upgrade ship body: increase health points and moving and health recreation speed.
- Upgrade shield: increase shield points and shield recreation speed.
- Upgrade cannon: increase the damage of the cannon.
- Upgrade charging laser: increase the damage of charging laser.



Gameplay Mechanics:

There are two types of weapons in this game.

- Cannon: flies by a straight horizontal line at a fixed speed, explode when it hit enemies.
- Charging laser: immediately penetrate all enemies in a horizontal line, keep damaged enemies.

There are two values of each ship in the game.

- Shield points: automatically get recreated at a faster rate, get decreased if the ship is hit by weapons.
- Health points: automatically get recreated at a slower rate, get decreased if the ship is hit by weapons and the shield point is 0.

Other than the cannon and charging laser, if the player and enemies collide then the enemies would explode and the player would take damage of the value of the remaining health point of the collided enemy.

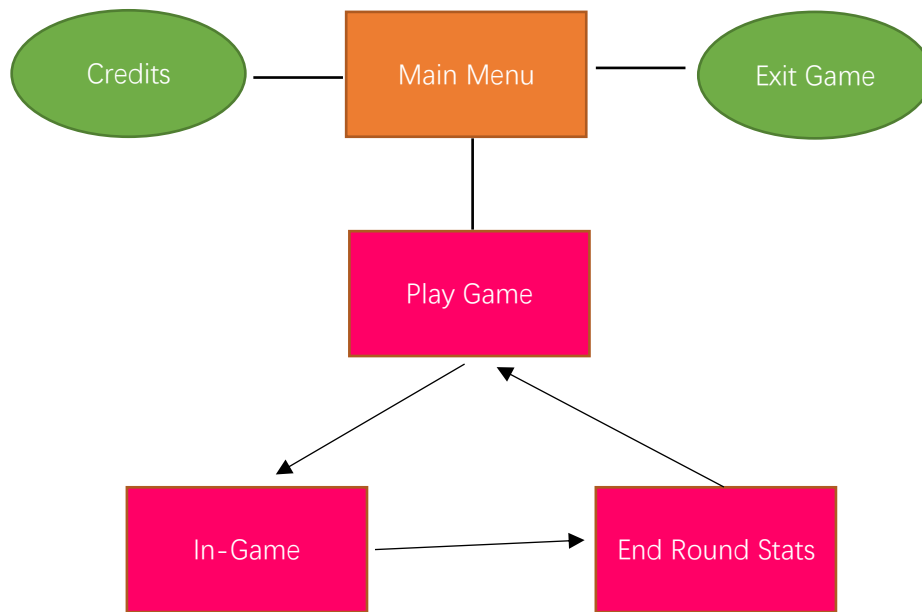
If the health points of enemies are decreased to 0 then the enemies would be exploded, and it would be respawned at a random type of enemy at a random place at the right edge of the screen.

	Player	Suicide aircraft	Aircraft	Battleship
Health point	300	50	100	150
Shield point	300	50	50	100
Cannon damage	120	N/A	60	N/A
Charging laser	60/second	N/A	N/A	60/second

When an enemy is killed by the player, the player will obtain some experience, when the experience reaches 20 points, it will level up and get an upgrade point to allow the player to select an upgrade option.

	Suicide aircraft	Aircraft	Battleship
Experience	2	3	6

Game Flow:



Rules for Game & Victory Conditions

The enemy will be respawned if it flies out the screen or is killed or crushed with the player's ship.

The player would lose the game if the health point is lower than 0, the game will be ended.

The player would win the game if the enemies are respawned 50 times, 200 scores will be rewarded and the game will be ended.

Game world:

The game world is a universe.



Figure 1: sample background of the game world

This is the background of the game world in SVD of Android Studio. The background is pure black to simulate the universe, there are some stars moving in the background as well. The player locates at the left side of the screen, it could go up and down on the screen but not go left or right in the screen (it could be available, but it will increase the complexity of manipulation and the difficulty of the game).

All objects in the game including the player's spaceship and enemies' spaceship are displayed in vertical views.

Bonus Materials:

The highest scores will be recorded in the game to encourage players to replay the game. When the game is ended, depending on the scores, some upgrade points will be rewarded to the player to upgrade the ship for easier gameplay.

Reference:



Horton. (2015). *Android Game Programming by Example* (1st edition). Packt Publishing.



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All sound files are generated by bfxr software

<https://www.bfxr.net/>