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Game Design

Mech Commando

Beyond Tech Studio

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1. Introduction

This document specifies the design for the gameplay, graphics, sound, and story of the game with the title "*Mech Commando*", it is based on design made by IPCA students Pedro Almeida, Carlos Passos and Leandro Rocha.

The Following is Beyond tech's proposal for a Hard-Sci-Fi First-person Shooter game, playable on Windows Compatible computers.

2. Game Overview

Mech Commando is a Single Player, full 3D Hard Sci-fi, fast paced First Person Shooter with emphasis on atmospheric environments and fast paced battles with high amounts of enemies. The player will Control a mech, using high tech weapons to fight AI Machines in various locations of the world. *It will be developed in the Unity Engine.*

- Single Player
- Full 3d
- Fast Paced
- First Person
- Developed in Unity

2.1. Gameplay Overview

In Mech Commando the player will control a humanoid Giant Robot, called a *Mecha*, exclusively in a first-person view while using an arsenal of weapons and movement options to complete objectives as fast as possible while destroying as many enemies as you can.

Before each mission, the player will be able to choose which weapon they will carry with them and what type of armor they will use. On the field, the player will need to stay on the move to dodge enemy attacks and reach their objectives, Missions will typically have the player start in point A, move to Point B to complete an objective such as destroying, defending or activating something and then move to point C for extraction.

At the end of each mission, the player will be ranked based on Time, Kills, Damage received, and Items used, and gain credit based on that rank.

In the Campaign menu, players will have access to a shop where they can buy new weapons with credits.

The game will also feature an extra Endless Mode where the player fights against enemies in Waves, in this mode, the objective is merely to survive the most waves possible, maps will be based on existing ones from the main Story and the available weapons will be purchased ones.

2.2. Similar Tittles and Inspirations

A Very similar gameplay-wise game is *Shogo: Mobile Armor Division*, from 1998. Other gameplay inspirations are shooters such as *Serious Sam*, *Half-life* and *Fear*. Aesthetically, we take inspiration from works such as *The Animatrix* and *Patlabour*.

3. Story

3.1. Story Blurb

Far into the future, after years of being used, the newly formed AI Nations started from nothing in the most hostile places on earth, far away from Humans, they quickly grew large, their industry too large for human nations to compete with. Tensions were rising and they struck first, quickly the territories between the three cities were united in one machine nation.

The Machines have 3 cities located in the Sahara Desert, the Arabian Desert and in the Himalayas. From these locations they have conquered the world and enslaved mankind. the last remaining countries on earth on earth are found in northern Europe, South Africa, East Asia, and the Americas.

You are a new *mecha* pilot in a Private Military Contractor (PMC for short), who do subcontracts for the various militaries still out there, and your job is to be as quick and deadly as possible while infiltrating the machine's territories and hitting their key locations.

3.2. Setting

Mech Commando is set in a world at war, where humans fight against an overwhelming foe that has no consideration for the planet or its inhabitants. The machines have built huge Obelisks that transform all nutrients, minerals and life in the earth into Electricity for themselves.

The game's atmosphere is dark and oppressing, the skies are Red, and the air is dusty, occupied territory has very little fauna or flora, instead being littered with ruins and machine buildings. Thunderstorms are a common sight as well as acid rain.

The encountered Enemies will also have a very oppressing theme, with a dark body and red lights indicating their optical sensors. Tall and Alien looking, their objective is to strike fear on whatever opposes them.

4. Graphics

Graphics will be in Full 3d, Assets will be modular and reusable, made in Maya and Substance Painter. Using the power of unity's Particle System, rain, wind and thunder will be simulated to give more atmosphere to the game.

5. Gameplay in Depth

5.1. The Player

The Player Controls a 9-meter-tall mech. The mech carries 1 main weapon, 1 special weapon and a type of Armor, all which are selectable in a loadout screen before each mission. The player also has access to a radar that is displayed on the HUD.

Player Resources are:

- Health
- Armor
- Energy
- Ammo
- Health packs

5.1.1. Movement Mechanics

2d Movement options are running, sprinting and dodging, the 2 former in all directions, the latter only onto the sides. Jumping is also possible, the mech being able to jump about 1/3 of its height.

Sprinting is limited by Energy, which starts at 100, and the player expends it by sprinting in any direction, if the player expends all energy while sprinting, he must wait for it to fully refill before being able to sprint again. Energy will refill over time.

Dodging is another movement option, with the press of a button, the player expends half their energy to very quickly move to the side, dodging any incoming fire.

5.1.2. Weapon Mechanics

There are several available weapons with several characteristics, they are all purchasable at the shop for credit. Ammo type are very important because it determines how the weapon behaves. The Following are the types of ammo that exists in Mech Commando organized by way of finite or infinite:

Finite Ammo: Bullets, Gyrojets, Railgun Projectiles, Missile, Grenade

Infinite Ammo: Lasers, Plasma

5.1.2.1. Main Weapons

Every Main weapon generates Heat, if the weapons heats up too much, it will overheat, and the player won't be able to shoot anymore until it cools down. Infinite Ammo weapons either do much less damage or generate much more heat to compensate. Limited ammo Weapons come with a very big clip, meaning reloads are either rare or nonexistent. Limited Ammo Weapons also generate Heat depending on their characteristics.

Ammo for limited Ammo Weapons can be found on the field, either dropped from Enemies or found lying around.

Each Mission the player will have their chosen weapons, but they can still switch mid-mission. Weapons that are purchased in the shop will be at randomly spawned in pre-determined location on the map. The player will then be able to switch their current for another one. To determine if a new weapon spawns in a pre-determined location, Dice will be rolled when the player approaches them, if the roll is successful, a drop pod will fall from the sky with a randomly selected weapon from the purchased list.

5.1.2.1. Special Weapons

Special Weapons are weapons that are shoulder or back equipped, they have limited uses and the player cannot refill them after being used, instead the player must equip another one from the drop pods.

These weapons are much more powerful and utilitarian than main weapons and will always require locking on targets.

5.1.3. Health

Each Mission the mech will start with 100 health, being hit by enemy attacks damages the mech, if health reaches 0, the mech will be destroyed and the player will get a game over and be sent back to the Campaign Screen.

Health can be restored by pickups.

5.1.4. Armor

The mech will always start with 0 armor, by picking up armor pickups, player can increase it. Having more Armor means having a damage percentage reduction when hit by an enemy attack.

The amount it reduces is based on the type of armor that the player as chosen in the loadout screen, there are 3 types of armor with different characteristics.

- Light Armor: +Speed -damage reduction
- Medium: Balanced
- Heavy Armor: -speed + damage reduction

5.1.5. The Radar

On the top right of the Hud there is a Radar, it scans the area around the player and displays all Enemies as red Dots on a green Background. The radar is transparent.

5.1.6. Pickups

Pickups are preplaced on maps, there are various types of pickups that all help refill the player's resources. Enemies will also drop smaller versions of existing pickups. To pick up any of the following, the player must merely touch them. Some pickups will be in containers that need to be destroyed first.

- Health pickups

Health pickups are called "nanopaks", when picked up they will be stored for later use. By pressing tab, the player can use them to repair their mech to full health. A maximum of 3 nanopaks can be stored.

Smaller, instant use versions are rarely dropped by enemies.

- Armor pickup

Armor pickups are called "EnergyPaks", unlike nanopaks they are instant use and have different variations, small, medium and large, each one giving more armor than the last.

Small versions are also rarely dropped by enemies.

- Ammo pickups

Ammo pickups are preplaced in maps and will always give the player ammo for their current main weapon, if the player is using an infinite ammo weapon then it won't be picked up.

- Weapon Pickups

Weapons are randomly spawned in “drop Pods”. These will fall down the sky in preplaced locations when the player approaches one of these spots and successfully rolls the dice. Each pod will contain 1 weapon randomly selected from the available ones and it will come with full ammo.

5.1.7. Money

Money is called “credits” and can be used to purchase weapons at the shop. It is gained at the end of each mission based on Rank.

5.2. The Enemies

Gameplaywise, each enemy fills in a different role such as flying or being more “tanky”. Enemies will have different types of behavior but will mostly stay at a certain distance due to being ranged, although some will rush the player in a suicidal attack.

There are 6 enemies in Total: 2 flying, 2 walkers, 1 tank and 1 tripod.

Enemies will be preplaced in maps, but also dynamically spawn in at certain times such as when objectives are met, or the player reaches certain locations.

Ground Enemies will Explode on death, dealing damage to anything nearby.

5.3. Levels/Missions

Missions are Selected from the campaign screen. After that the player will be taken to the loadout screen to select their weapon and armor type. There will be a Tutorial and a free Practice level available besides the main missions. Most Missions will require beating another one before becoming available. The Tutorial is the first Mission.



Figure 1 - Mission Select Screen MockUp

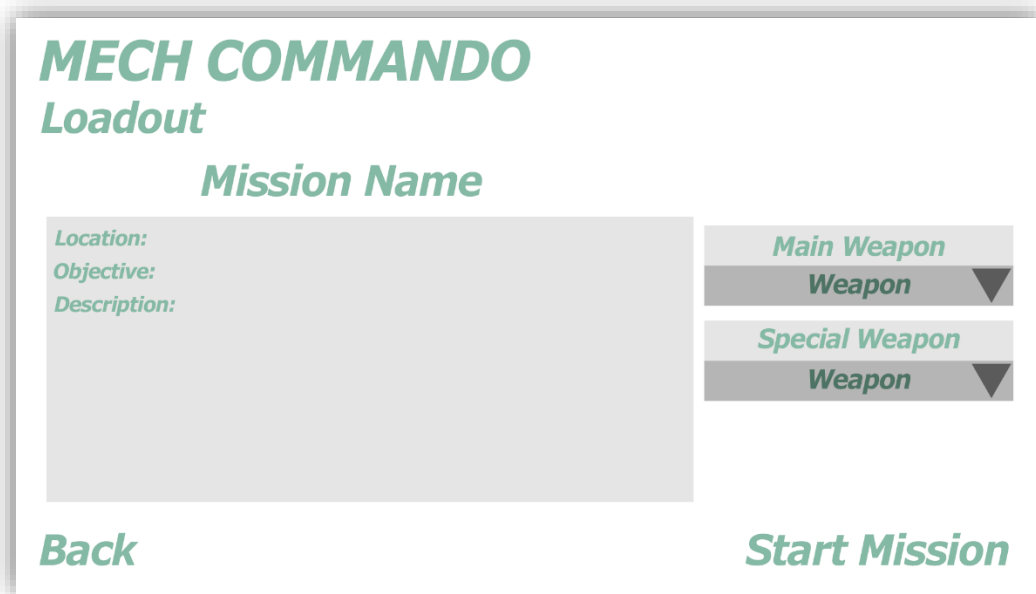


Figure 2 - Loadout Selection Screen Mockup

After the mission, the player will be taken to the ranking screen, and be given their rank and credits.

5.4. The Ranking System

After each mission the player will be ranked based on their performance. The rank goes S – A – B - C – D. with S being the highest and D the lowest, the rank is based on:

- Time (less is better)
- Enemies destroyed (More is better)
- Damage Received (less is better)

From this rank, a credit reward will be given.

5.5. Endless Mode

Endless mode is an extra wave-base mode where the player must fight hordes of enemies each wave. The sole objective is to kill every enemy that spawns in each wave and complete all the waves. the player will select this mode from the campaign screen and will still be able to choose which weapon and armor type they start with. Weapons spawned in game will be from the purchased pool.

Maps will be small and based on the campaign ones, meaning no new assets will need to be made.

6. Player interface

6.1. Controls

The Following are the in-game controls for controlling the player

- W - run forward
- S - walk backwards
- A - strafe Left
- D - strafe Right
- Double press A or D - Dodge
- Space - Jump
- Shift - Sprint
- LMB - Shoot Primary Weapon Primary Mode
- RMB – Shoot Primary Weapon Secondary Mode
- Tab – Check Objective
- F – Special Weapon
- E - Use
- Q- Use Nanopak
- esc – Pause Menu

6.2. In game GUI

The GUI will feature that following information:

- Main Weapon Ammo
- Special Weapon Ammo
- Health
- Armor
- Radar

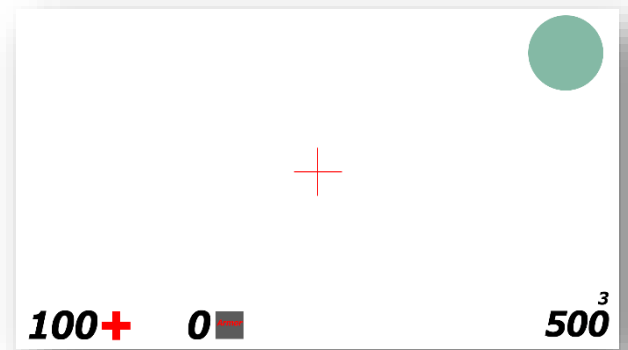


Figure 3 - GUI mockup

6.3. Objective Guidance

Objectives are marked by holographic triangular markers displayed on the GUI, by pressing tab the player can check the objectives in text form. Some objectives will only display markers on the general location instead of the exact one.

6.4. Game flow Diagram

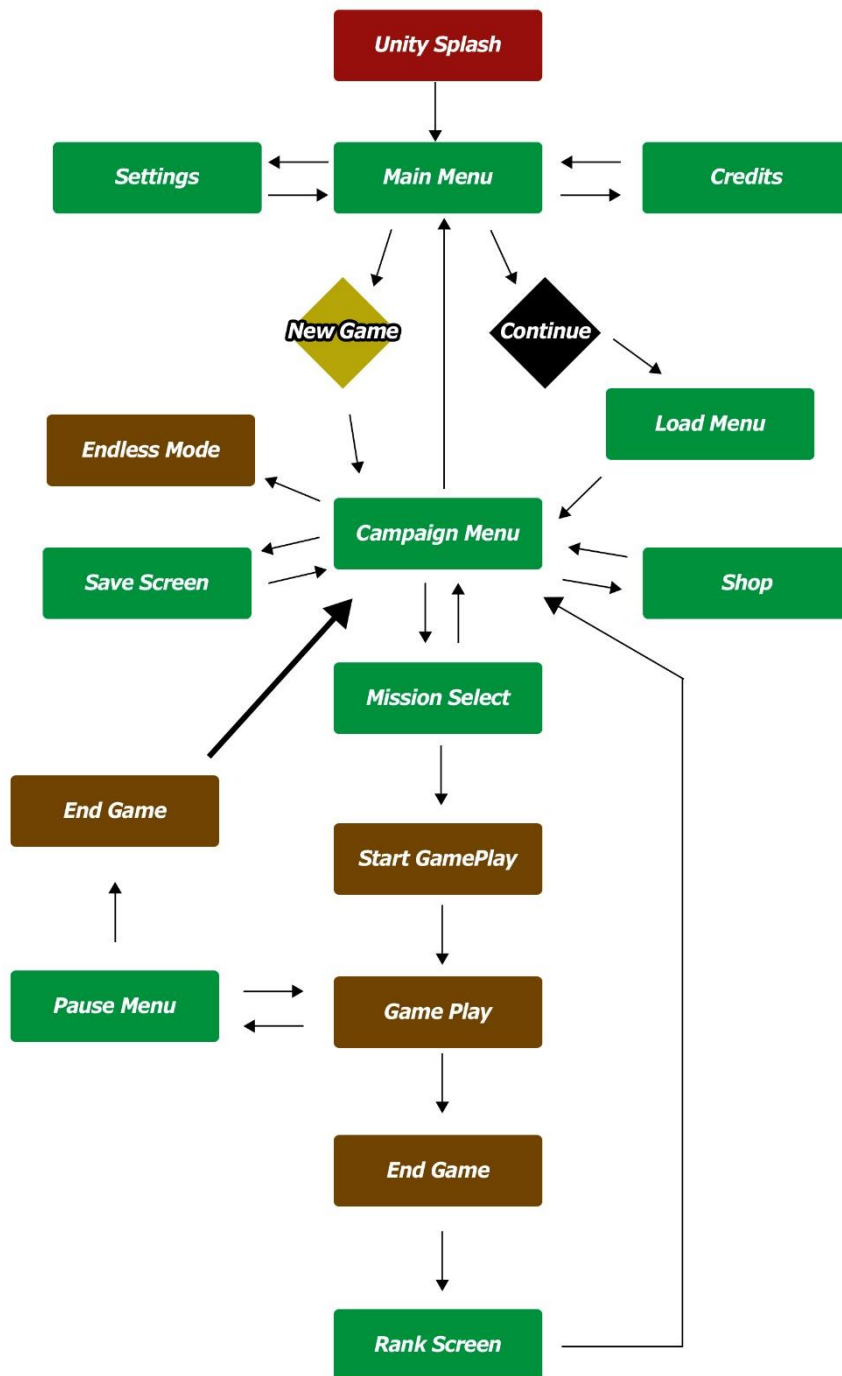


Figure 4 - game flow diagram

7. Planned Levels

There are 3 Main Levels Planned plus Tutorial and a Free Practice map.

→ The Tutorial

The tutorial will teach the basics of movement and shooting, taking place in a shooting gallery with stationary and moving targets

→ Practice map

The practice map will be a simple shooting gallery where the player can test weapons.

→ Mission 1

Title: Destroy the Air Defenses in Tibet

Location: The Tibetan Mountains

Objective: Destroy the Anti Air Weapons

Description:

Destroy the Anti Air Weapons located in a machine base deep within the Tibetan mountains.

You will be dropped 50km away from the base, from there, follow the valley till you arrive at the enemy base, once there you must destroy all 5 Anti air instalment and then get out, your extraction point will be much further away, so, keep following the valleys till you reach open lands in India, there will be an extraction ship waiting for you.

Remember, the mountains are crawling with machines, so blow them all to hell.

Walkthrough:

After starting the mission, the player needs to follow the main Road where he will come across various machine checkpoints, these will require finding a button that can open the Doors so that the player can progress, there are 2 walled Checkpoints before reaching the enemy base with the AA.

When in the enemy base, the player must look for the holographic markers that indicate where the AA weapons each are. After they've destroyed all of them, friendlies will airstrike the checkpoints that stand in the way of reaching India.

The player then must keep following the main road until they've left the mountain region and come across an open field, there the extraction ship will be waiting for them. When the player reaches the ship, the mission will end.

→ Mission 2

Title: Enemy Power

Location: Saudi Arabia

Objective: Destroy the Nuclear Power Plant in Saudi Arabia

Description:

You will be dropped in Saudi Arabia near the Red Sea, from there you must go deep in Saudi Arabia until you find the Enemy's Nuclear Power Plant, there you will be met with various obstacles before reaching the heart of the Plant where you will plant a bomb, you must then escape before it detonates.

After confirming the explosion and issuing damage, you must head north near Iraq where there will be an extraction transport ship waiting to pick you up. Don't stay too long or you'll be in for a radiation bath.

Walkthrough:

When the mission starts the player must follow the marker to head east towards the Power Plant, there he will have to find and destroy the Patrolling Walker with the key to gate, destroying him and making him drop it. After picking up the key the player must head to the gate and that will automatically open when they get close.

Once inside the player will make their way to the main room of the facility, where they will plant a bomb. This bomb is on 2-minute timer, so the player needs to leave the plant before it explodes. reinforcements will spawn in after bomb is planted.

Finally, by follow the holographic marker, the player will reach the extraction point and end the mission.

→ Mission 3

Title: The South American POWs

Location: Tanzania

Objective: Rescue the POWs.

Description:

You've been named for a rescue Mission, your objective is to rescue captured soldiers from south America being held in a POW facility in Tanzania, we fear they are being used for energy production. You will be deployed in a discreet location near the facility where they are being held. Proceed to it and destroy every enemy around it so that we can deploy in the rescue vehicle. Wait for the POWs to get in the vehicle and then escort it south to a safe location for extraction. Failure is not an option.

Walkthrough:

The player starts West of the facility, between him and it there are 2 Enemy bases next to each other's, the player is then free to proceed to the POW holding facility in whatever route he chooses. When the player reaches it, the player must destroy every enemy around it to secure the location and allow for the rescue vehicle to be deployed. The rescue vehicle is a heavy truck, and the player must defend it while the prisoners get in. After that the truck must be escorted south to the extraction location where the mission will end.

8. Lists

This Section has detailed Listing of the weapons, Enemies in Mech Commando.

8.1. Weapons List

Weapon description, name and characteristics are presented at the shop.

Pistol "**Blaster**"

- Ammunition: Laser
- Capacity: Infinite
- Damage Output: medium
- Range: High
- Accuracy: High
- Rate of Fire: Low
- Recoil: low
- Buying Cost: Free
- Secondary Firing mode:
- Notes: Fires 3 Beams at once
- Country of Origin: China
- Description: "A Laser Pistol developed in China for police forces, it fires 3 beams at a time to compensate laser's poor damage potential."

Rifle "**Texas Pattern Bolter**"

- Ammunition: GyroGet
- Capacity: 20
- Damage Output: High
- Range: Medium
- Accuracy: Medium
- Rate of Fire: Medium
- Recoil: Medium
- Buying Cost: Low
- Secondary Firing mode:
- Notes: Bullets cause small Explosion on Impact
- Country of Origin: United States of America
- Description: "A military grade bolter Developed in Texas, it fires 1m caliber gyrogets that explode on contact, unfortunately, it doesn't have much range due to the nature of gyrogets but packs a damn mean punch."

Minigun "M13400 Minigun"

- Ammunition: Bullets
- Capacity: 500
- Damage Output: Low
- Range: High
- Accuracy: Medium
- Rate of Fire: Very High
- Recoil: Medium
- Buying Cost: Medium
- Secondary Firing mode: Spin the Barrel
- Notes: None
- Country of Origin: United States of Europe
- Description: "The Standard mech weapon, the minigun, it fires 100mm cal. bullets at lightning speed, an individual bullet might not do much damage, but 100 of them will shred a target. These used to come equipped in planes before mechs came around!"

Laser Weapon "Wattz Gauss Rifle"

- Ammunition: Laser
- Capacity: Infinite
- Damage Output: High
- Range: High
- Accuracy: High
- Rate of Fire: Medium
- Recoil: High
- Buying Cost: High
- Secondary Firing mode: Charge Shot
- Notes: None
- Country of Origin: America/Japan
- Description: "A joint project between the labs of Mesa and fukushima, fires a Concentrated laser that can Penetrate Armor. take care to not shoot it too much or you'll melt the whole gun!"

Plasma Gun "**Hyper Blaster**"

- Ammunition: Plasma
- Capacity: Infinite
- Damage Output: High
- Range: High
- Accuracy: Medium
- Rate of Fire: Medium
- Recoil: Medium
- Buying Cost: High
- Secondary Firing mode:
- Notes: Causes a Small Explosion on Hit
- Country of Origin: Russia
- Description: "the Hyper blaster is Biggest and Baddest of automatic weapons, this fires plasma that melt the enemies away, be careful of the plasma that explodes on hit, courtesy of crazy Ivan."

Rocket Launcher "**LudenArms Mod-1 Rocket Launcher**"

- Ammunition: Rockets
- Capacity: No Reload Needed
- Damage Output: Very High
- Range: High
- Accuracy: Medium
- Rate of Fire: Low
- Buying Cost: High
- Secondary Firing mode: Loads a maximum of 3 rockets before shooting
- Note: causes Huge Explosion on impact
- Country of Origin: Germany
- Description: "This rocket launcher can be loaded with 3 rockets that will all fire consecutively giving you that edge when you really need to blow the hell of whatever needs to be blown up."

Grenade Launcher "**Neopup PAW-100 Grenade Launcher**"

- Ammunition: Grenades
- Capacity: No Reload Needed
- Damage Output: High
- Range: Low
- Accuracy: Low
- Rate of Fire: Medium
- Buying Cost: Medium
- Secondary Firing mode: None
- Notes: Causes a Big Explosion on detonation, explodes on contact with enemy
- Country of Origin: South Africa
- Description: "The Neopup is the current standard mech grenade launcher, its intelligent grenades bounce off the ground but explode when in contact with combatants, that's right, you're included in its target list."

Railgun "**MIKASA**"

- Ammunition: railgun Projectiles
- Capacity: No Reload Needed
- Damage Output: Very High
- Range: Very High
- Accuracy: Very High
- Rate of Fire: Very Low
- Buying Cost: Very High
- Secondary Firing mode: Zoom in
- Country of Origin: Japan
- Description: "The Ultimate anti-armor Rifle, using electromagnetic force, it launches projectiles at blinding speed that can reach targets kilometers away. Before mechs came around, these used to be put on battleships"

8.2. Enemies List

drone "HK-Drone"

- Health: Medium
- Speed: Medium
- Movement type: Flying
- Damage Output: Medium
- Rate of Fire: Medium
- Accuracy: Medium
- Ammo Type: Bullets
- Behavior: Stays at a distance
- Weapon(s): Machine Gun
- Notes:



Figure 5 - Drone Reference

Suicide Drone "Seeker"

- Health: Low
- Speed: Fast
- Movement type: Flying
- Damage Output: High
- Rate of Fire: None
- Accuracy: Very high
- Ammo Type: None
- Behavior: Rushes to the player and Explodes
- Weapon(s): None
- Notes: Suicides

Walker "Hunter"

- Health: Medium
- Speed: high
- Movement type: Walking
- Damage Output: Medium
- Rate of Fire: High
- Accuracy: low
- Ammo Type: Laser
- Behavior: gets close to the player while shooting
- Weapon(s): Laser Machine Gun
- Notes:



Figure 6 - Walker Reference

Giant Walker "Destroyer"

- Health: High
- Speed: Slow
- Movement type: Walking
- Damage Output: High
- Rate of Fire: Medium (Machine Gun) / Low (Rocket Launcher)
- Accuracy: Medium (Machine gun) / high (Rocket Launcher)
- Ammo Type: Bullets (Machine gun) / Rockets (Rocker Launcher)
- Behavior: Stays at a distance shooting rockets
- Weapon(s): Dual Machine Gun / Rocket Launcher
- Notes: Has 2 Weapons

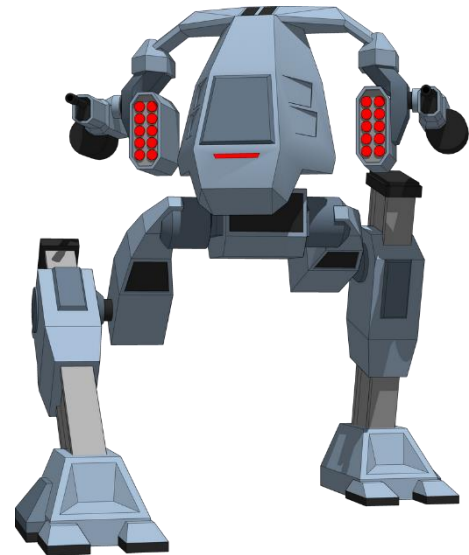


Figure 7 - Giant walker reference

Spider Tank "HAW2000"

- Health: High
- Speed: Medium
- Movement type: Wheels
- Damage Output: Medium
- Rate of Fire: Very High
- Accuracy: Medium
- Ammo Type: Bullets
- Behavior: stays at a distance, shooting its Minigun, tries to dodge incoming attacks
- Weapon(s): Minigun
- Notes:

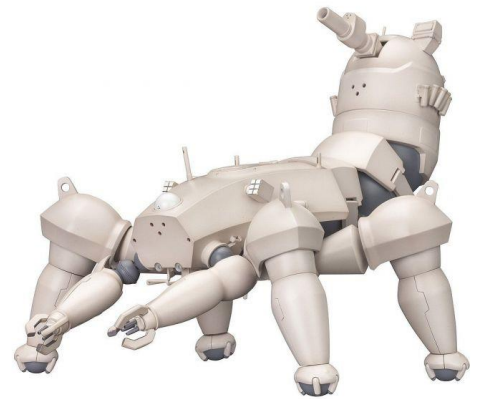


Figure 8 - Spider Tank Reference

Tripod "Fighting Machine"

- Health: High
- Speed: Medium
- Movement type: Walking
- Damage Output: High
- Rate of Fire: Medium
- Accuracy: High
- Ammo Type: Plasma
- Behavior: Stays at a distance
- Weapon(s): Plasma machine Gun
- Notes: Can only be shot in its main body.



Figure 9 - Tripod Reference