

Earth Expeditionary



Minimum Viable Product Game Design Document

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Introduction

Game

Earth Expeditionary, a PC first-person cooperative tactical shooter.

Pitch

In 2025, a hostile alien force attacked Earth, starting a long and bloody war against them on our home turf. Now, years later, pocket resistances still fight against the endless hordes in the hopes of freeing their homeland. Gear up your character with others as an expeditionary force out into the ruined cities, attempting to scavenge supplies and eradicate your foes.

Pillars

Impactful customization, coordination focused, and sense of progression.

Core Features

Designed in the same vein Call of Duty: Ghost's Extinction and Tom Clancy's Rainbow Six: Siege's Outbreak game modes, players fight against waves of AI enemies in a partially destroyed/overtaken city, using close-to-modern weaponry alongside other players. Additionally, a class-based character selection affords each player unique special abilities and passive bonuses.

Although there should be minimal equipment restrictions between classes, each has a unique gadget and perk that fits their role and boosts their team. For instance, the Biological Scientist is able to disperse temporary medical assistance to their team, choosing between such options as damage resistance or cloaking. Likewise, the Martial Artist can choose between attracting hostiles near teammates and supplementing the team's agility.

Each class would also have a bonus to one of the specific minigames available; if the players are doing a 'Track' objective where they need to find the path that a target took, the Survivalist would have their sensory specialty that would allow them to see visual cues such as footprints more easily. This doesn't prevent other members from completing the role of the minigame, but increases the group's overall ease/speed by having the 'correct' character do it.

Target Audience

There are multiple audiences that I think will be interested in this type of game. The most common would be **thrill-seekers** that enjoy playing such games as FPS for the action; they are excited by the risk of losing, and invigorated by their success of killing mobs of enemies (IE, the Challenge Aesthetic in MDA Theory). Since combat is an important part of the game and primarily what the characters will be doing while in-mission, it is easy to see why this type of consumer would be attracted. The weaponry and combat mechanics in-game will mostly be focused around satisfying these types of players.

A secondary audience type is the one that I myself fall into; **strategists** that love creating and executing plans, and maximizing systems to obtain the most effective or interesting results (IE, the Expression Aesthetic in MDA Theory). These types of players tend to be interested in the many game mechanics, and how they work together as dynamics. This type of player is also great for determining balance in a system; those who wish to maximize their offensive capabilities for instance will find the most efficient way of dealing damage. If the different methods are unbalanced (or a few can combine in a certain way that others can't), then these other methods will be discarded for the sake of pursuing efficiency. As such, developers can learn from them and try to make different systems viable in different situations, and/or make all systems worthwhile by ensuring equal fun and power.

Gameplay

Structure

Players load into a mission and must navigate through the hostile environment, finding and completing objectives to then allow them to leave.

Each mission has multiple objectives and minigames incorporated into the level. These collective obstacles will limit the speed at which the players can progress, though most efforts can be sped up through strategically working as a team. The following is a list of the objectives that may be spawned/that need to be completed;

- Annihilation; clear out all enemies in an area, which will spawn up to a certain quantity. Players can fail this mode by all dying.
- Protection; defend an object whilst it performs its task. The players can fail by having the objective destroyed, or all dying.
- Escort; move a large key object from one objective point to the next (or extraction, if it is the last objective), which restricts all combat and climbing actions while carried. The players can fail by having the objective destroyed, or all dying.
- Escape; reach the extraction point. This is always the objective after the final minigame has been completed, and players can fail by all dying.

After the objective in an area has been completed, the players will then have a minigame that must be solved in order to advance to the next area. Though players may begin working on this minigame ahead of time, it may spread the team thin and prevent them from successfully completing the objective, giving them a choice as to how risky they play.

Minigames

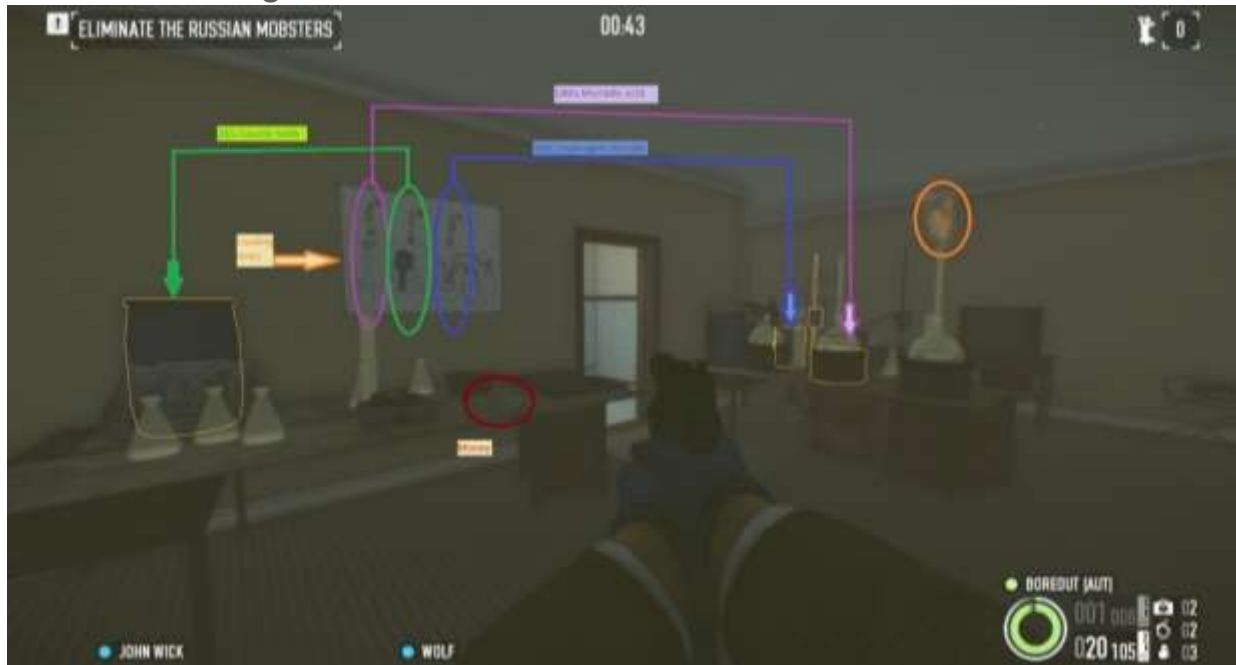
A crucial part of the gameplay to break up gunplay, the minigames also serve as interesting puzzles to entertain players and block off immediate access to the entire map. Below is a list of the three minigames currently implemented, each accompanied by an image of similar implementation to the current vision by other games, and a short description of how the minigame will function.

Tracking Minigame



Based off of a 'trail of crumbs', players must find clues in the Tracking minigame in order to find out what actions or in what direction a target headed. Clues would be things such as fingerprints, blood, and interacted objects. If players follow the wrong path or can't track the clues properly, they simply lose time or have to head in a random direction (if following a path), or look manually (if looking for an object).

Concoction Minigame



Based around a mixing system, Concoction requires the players to find ingredients and add them in a specific order based off of a discovered list of instructions in order to make synthetic compounds and materials. Incorrect concoctions would waste ingredients and require a restart of the concoction process.

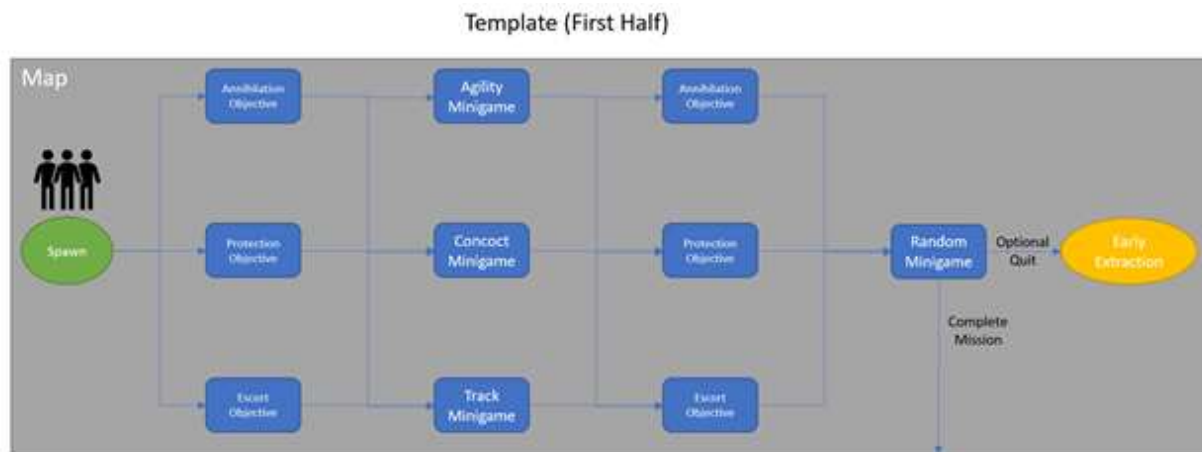
Agility Minigame



Based around physical navigation, the Agility minigame requires players to notice and path-find their environment in order to scale an area to reach an otherwise inaccessible area, such as a window to a control room to open a door. Players would be restricted to 2-D movement; side-to-side, and upwards-and-downwards. The player may find multiple dead ends, and may also (accidentally or purposefully) jump off to restart at the cost of taking impact damage.

Level

It is obvious that the game cannot be played without an environment, so I would require at least one level. To expose players to all types of minigames and objectives, I would create a level but then have the players optionally loop back to the beginning of the level. To do this, the level would have three paths each with three segments, all leading to a single location on the other end of the map. Each segment would have a challenge, following an objective-minigame-objective-minigame-order.



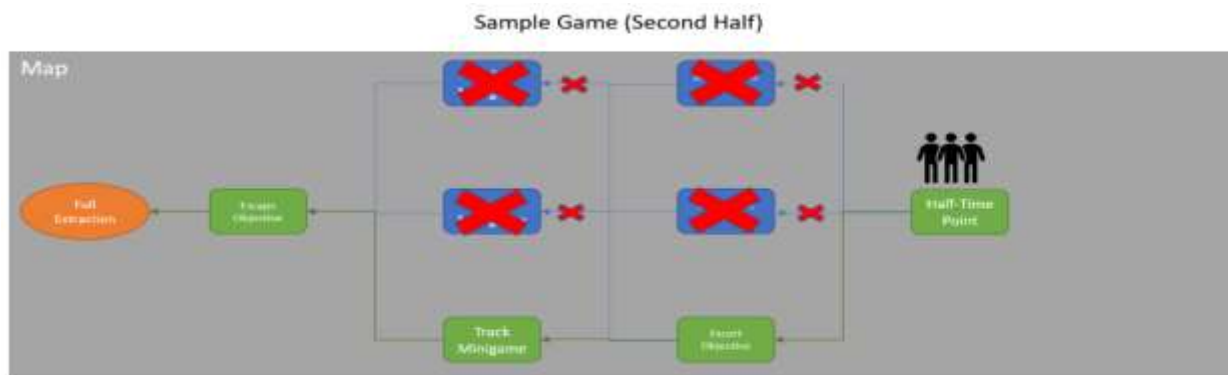
At this 'half-time' point (after approximately 20-30 minutes), players could extract or 'complete the loop' to get back to their original destination, going through the segments again with obstacles in an objective-minigame-objective manner.



In order to maximize replayability by players, the mission path except for the last objective is randomly decided at the beginning of the mission, with each different possible path representing a different option in the respective segments. Once the first objective is selected, it would not appear in the later stages, and likewise with the minigames.



Since the 'mid-map' objective is only one point, I would have it possess the environmental/interactable objects necessary to support any of the three minigames. This allows players to somewhat expect what will occur next, increasing their knowledge as they continue through the map. This method allows only one map to offer at least 40 minutes of gameplay, and allows for a wider variety of experiences than would be possible with a simple linear map, in addition to exposing all players to all game modes and minigames with equal likelihood.



Player Characters

Affording each player a variety of situational bonuses, each character has abilities that are designed to give the player(s) a temporary edge, increasing the capability of the team at crucial moments. Each character will have one passive ability that is always active, and the choice of one unique active ability that will need to be carefully considered, selected, and used, adding an additional tactical layer to the game.

In addition to their abilities, each character will also have a minigame benefit which helps with completing a specific minigame, decreasing the potential time needed compared to a different character of similar skill level.

Name	Biochemical Scientist
Description	A young optimist, the Biochemist uses custom-blended hormones to assist the squad and stall enemies. Their familiarity with carrying aid supplies allows them to revive teammates faster and suffer less from carrying concoction ingredients.
Passive	Revives teammates 50% faster.
Ability Option 1 (triggered, 2 uses)	Norepinephrine; the entire team takes 25% less damage for 30s.
Ability Option 2 (triggered, 2 uses)	Pacify; Brainless ignore the team for 25s.
Minigame Benefit	Suffer no movement penalty when carrying Concoction ingredients.

Name	Survivalist
Description	This operator has traditionally been a loner, more comfortable with nature and their self than with others. However, extinction on the horizon has led them to band together with other survivors. They still possess some independency to tip the scales in their favour, which can help pull off the 'clutch' moments.
Passive	May self-revive once per match, for 10% health.
Ability Option 1 (triggered, 2 uses)	Conceal; lose enemy aggro for 15s, as long as the player does not sprint or climb.
Ability Option 2 (60s cooldown)	Hunter; detect and tag all enemies within 25m for 10s.
Minigame Benefit	Environmental clues are highlighted from further away in the 'Tracking' minigame.

Name	Martial Artist
Description	A CQC focused character that can temporarily boost teammates' abilities, specializing in taking reduced damage on the frontlines from melee combatants.
Passive	Take 25% reduced melee damage from enemies, and recover from disorientation 25% faster.
Ability Option 1 (triggered, 2 uses)	Rallying Cry; the entire team moves 25% faster for 30s.
Ability Option 2 (60s cooldown)	Taunt; all enemies within 25m drop aggro from teammates to prioritize the MA for 15s.
Minigame Benefit	Climb 25% faster in the 'Agility' minigame.

Combat

Gunplay

The largest component of gameplay, gun combat is the core of most FPS game, and the biggest challenger in *Earth Expeditionary* as the primary means of interacting with hostiles. This feature is inherently what attracts so many of the ‘thrill seeker’ players, and each weapon will provide a different experience via a unique combination of stats such as reload time, fire rate, damage, and accuracy.

(While in desktop application mode, double click to expand table)

Weapon	Damage	Mag Size	Total Ammo	Cyclic Rate (Rounds per Minute)	Accuracy (MOA)	W
AK47	40	30	180	600	2	
KRISS Vector SMG	25	25	200	1200	10	
Remington Model 870	100	7	42	60	7	
M60	50	100	400	600	0.6	

Enemies

Of course, for combat to exist there must be a hostile force. In *Earth Expeditionary*, this is an AI-controlled horde of aliens that relentlessly attempt to kill the players. Below is a chart highlighting the types of enemies found in the game, as well as the interactions that each has with the players.

Enemy Name	Role	Behaviour	Base Health	Movement Speed (m/s)	Base Action Effect
Brainless	Minion	Seeks out players and then attacks via melee. Headshots deal double damage.	100	6	20 damage via melee attacks.
Bomber	Kamikaze	Will seek out players and then attacks the player via priming for approximately two seconds, then detonating. Weak point (instant kill) is the explosive sacks used to detonate.	50	8	25 damage via exploding.
Lobber	Harasser	Gets within a range of players, then deals damage and a disorientation effect via projectiles. Has no weak point.	200	3	10 damage, temporarily blind via projectiles.
Juggernaut	Tank	Will seek out players and then attacks via melee, also slowing down any hit players. Possesses invincible outer flesh, but is vulnerable while attacking.	2000	6	50 damage and foe slowdown via melee.

Version Control

Version	Date	Details
1.0	October 9 th , 2019	Base game entering Capstone I, with functioning Agility and Concoction minigames, a firing/reloading system, a respawning system on player death after a delay, a ranged and melee enemy, and 3 playable first-person characters.
1.1	October 23 rd , 2019	Finished up sheets, added 'Zone 1' in greyblocked form. Currently working on 'zone spawns' to then allow for Annihilation Objective to be fully incorporated.
1.2	October 23 rd , 2019	Based on Mark's feedback, partial restructure of Zone 1.
1.3	October 30 th , 2019	Updated enemy mesh, incorporated basic unscaled UI, and finished Annihilation objective and Zone 1 Map, sans updated rework IAW PawnSensing.
1.4	October 30 th , 2019	Streamlined spawning capabilities, changed projectiles to function on the physics based system, and made projectiles detect via hits on mesh rather than overlaps on colliders.
1.5	November 6 th , 2019	Reworked first level 'collapsed building' and military section. Added additional UI.
1.6	November 6 th , 2019	Parked remaining tasks to finish up level design iteration.
1.7	November 13 th , 2019	Level design iteration and bug cleanup.
1.8	November 13 th , 2019	Playtesting and tweaking of zones.
1.9	November 20 th , 2019	Added revive system and rearranged final military fishbowl, after level design revision.
1.10	November 20 th , 2019	Added PC specific inputs, scaled controller inputs, and scaled controller inputs on aimIn.
1.11	November 27 th , 2019	Updated bleedout animations and added revival animation, in addition to locking 'reviver' controls. Attempted meshing but was largely unsuccessful at finding models in the EGS.
1.12	November 27 th , 2019	Obtained Ambulance, HUMVEE, and Tank meshes from UT, and in process of obtaining vehicles from 'Platformer' Learn UE4 Project.