

Far Cry 5 – The Drone Operator

Defining the Enemy

Survey. Support. Shift the paradigm. The Drone Operator is Far Cry 5's all new multi-faceted enemy archetype. Composed of two entities, the drone - the highly mobile support unit capable of scouting outposts and providing aid to other enemy units during firefights, and its operator - the critical weak point guarded behind droves of enemies and cover.

The Drone Operator is a unique enemy within the Far Cry 5 sandbox, engaging with the player in nontraditional ways. Adding a flying opponent allows enemies to navigate combat and their environments in all new ways. Introducing a support role shifts the dynamic of enemies and how the player engages with them, encouraging them to consider how they prioritize which ones to take out first. Finally, the drone also places a focus on engaging with the systemic elements of the game, including light, sound, flame propagation, wildlife systems, and potentially even more.

Vision

The Drone Operator enhances and expands the already existing core systems of Far Cry 5, offering the opportunity to recontextualize them. This enemy doesn't just focus on adding new elements into the sandbox of the game, but instead on engaging with much of what is already there, including systemic elements, but also level design, throwables, and weapon emplacements.

It also engages with most aspects of the Far Cry sandbox, enabling new gameplay possibilities in many playstyles: Infiltration, Sniping, Combat, and beyond. It provides both new challenges, as well as twists to existing challenges, all without punishing players. Stealth evolves through the Drone Operator's high speed and aerial movement patterns, combat with its increased verticality and its support style of engagement and sniping with its ability to make use of throwable equipment at extreme ranges.

The Drone Operator also fits well into the existing Far Cry 5 world and narrative, fitting comfortably into the image of the American cult militia, engaging with the game's themes of surveillance and control.

Enemy Overview

Please note that any parameter not explicitly mentioned here should be inherited from the base enemy class to promote a cohesive experience. We are operating under the assumption that a standard enemy has 100 health points, and that 1 point of damage reduces health by 1.

Operator Parameters		Value
Operator Health (HP)		100
Operator Primary Weapon		Drone Remote Controller
Operator Secondary Weapon		1911
Operator Drone Deploy Time (Seconds)		15
Operator Nearby Detection Range (%)		33

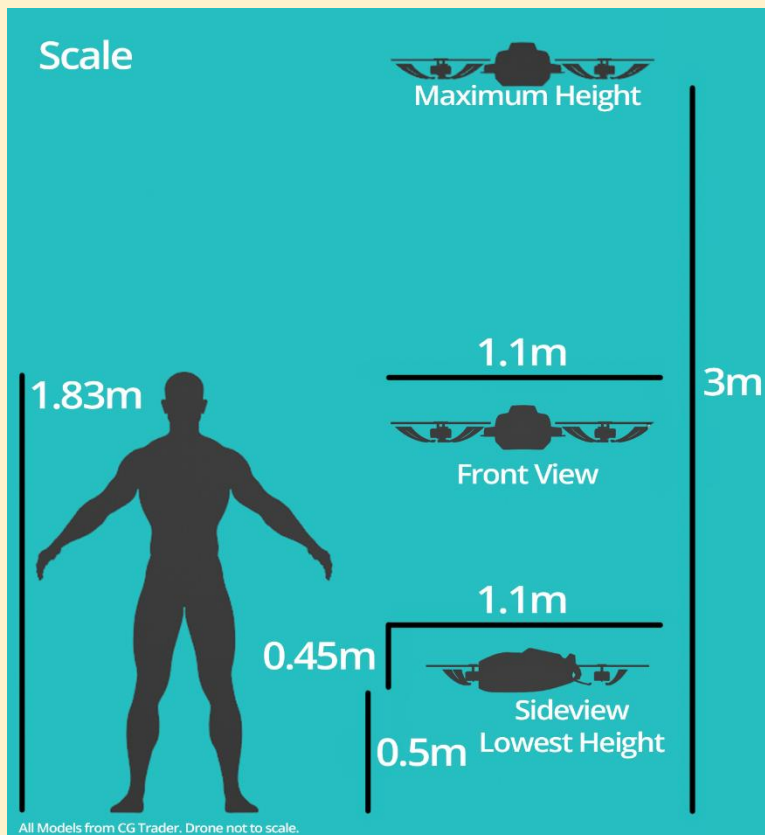


Figure 2: Drone Scale Relative to a standard unit



Figure 1: Operator Parameters Visualized

Drone Parameters		Value
Drone Health (HP)		200
Drone Max Movement Speed (% Relative to Player Sprint Speed)		150
Drone Time to Max Speed (Seconds)		0.8
Drone Time to 0 m/s from Max Speed (Seconds)		0.5
Drone Dimensions (LxWxH, cm)		110x110x45
Drone Flight Height from ground (Meters)		0.5-3
Drone Death Explosion Radius (Meters)		5
Drone Death Explosion Damage (HP)		50
Drone Max Distance to Operator		30m
Drone Alarm (Alert Nearby) Sound Radius		15m
Drone Highlight Radius		3-5m
Player Target Distance for Flashlight Blind Trigger		30m

Drone Stun Charge Up Time (Seconds)	1
Drone Stun Length (Seconds)	3
Drone Stun Movement Speed Scalar	0.3x
Drone Stun Turn Speed Scalar	0.3x
Drone Stun Damage	10
Drone Time to drop Throwable (Seconds)	1.5

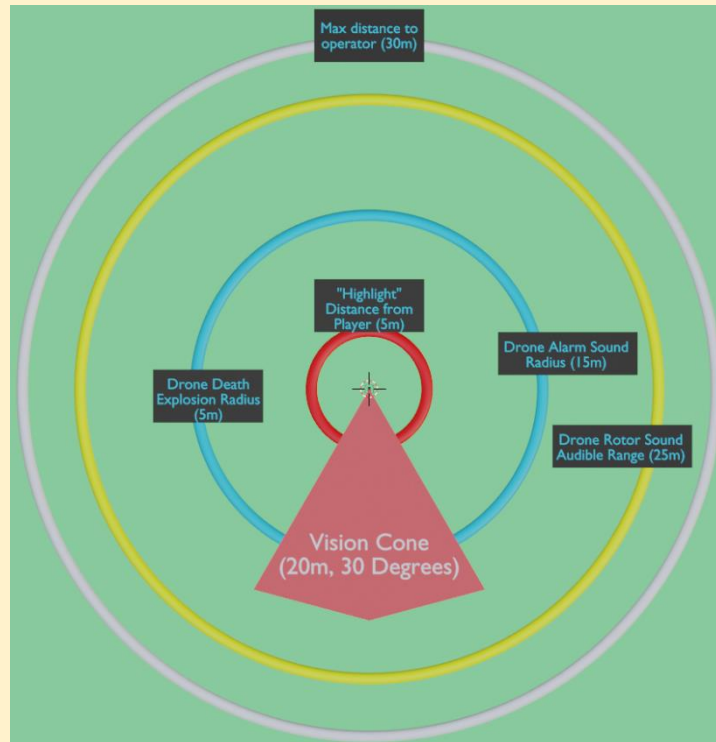


Figure 3: Drone Parameters Visualized

Defining Elements

There are a few core concepts that are essential to the Drone Operator and come up throughout this document. They will be defined here.

Operator Nest

This is where the operator will be stationed. The nest should contain a chest of some sort. This is where the operator should return to retrieve a new drone should their drone get destroyed for any reason. This includes mid combat, should the operator deem is a safe time to return here. Patrolling Drone Operators would not have access to a nest and would therefore default to standard patrolling behavior for positioning.

Drone Remote Controller

This is how the operator should control the drone. It should be capable of being destroyed, resulting in the drone malfunctioning and crashing without killing the operator. This could result in interesting gameplay moments such as destroying the controller as it peeks out of

partial cover slightly or timing the destruction of the remote controller to force it to crash and cause damage to something in the environment.

Behavior Breakdown

The Drone Operator provides new functionality in all aspects of Far Cry's gameplay loop that engage with enemies, and therefore a breakdown by behavior type will help us understand how the Drone Operator will function in every scenario.

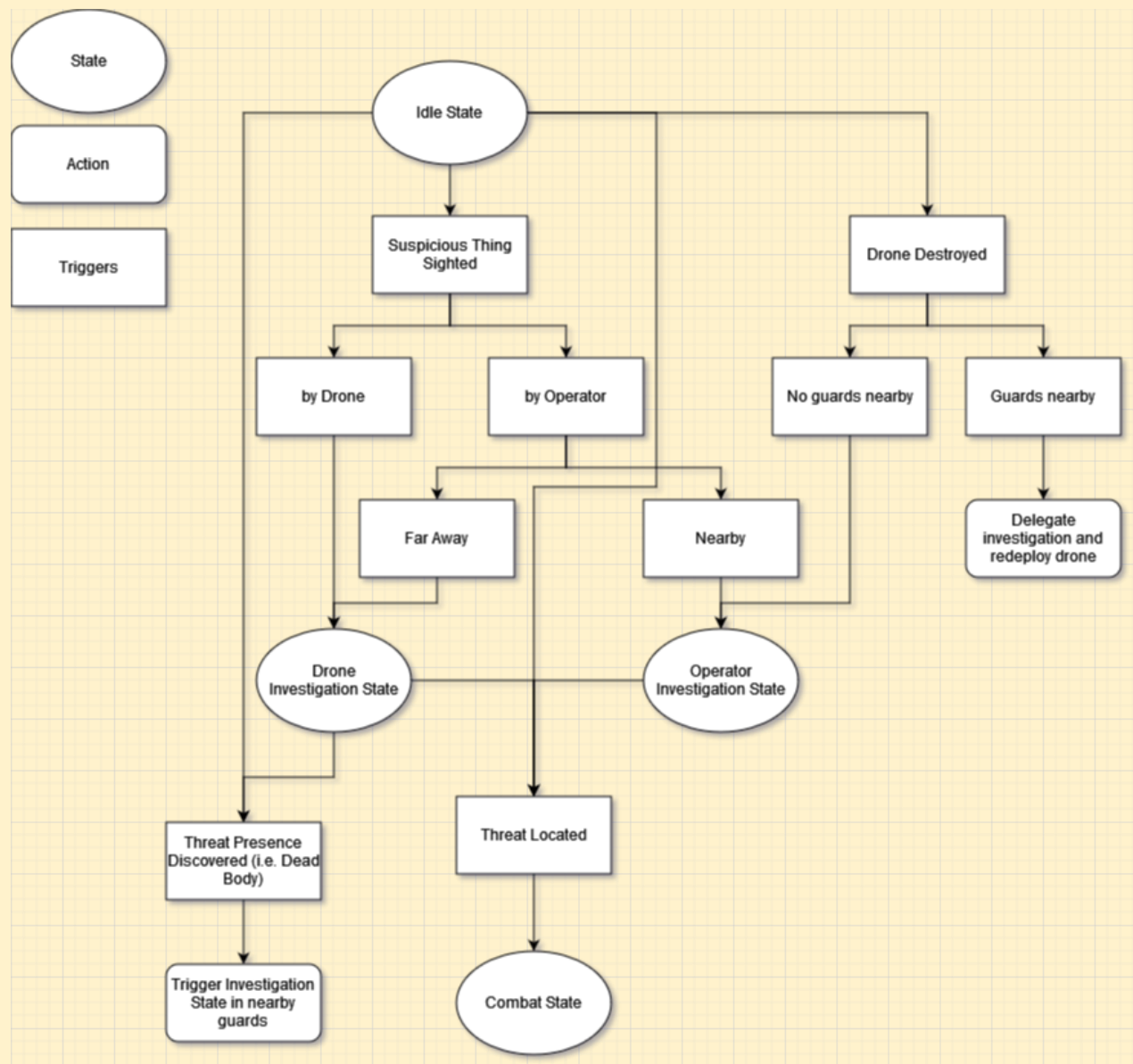


Figure 4: Drone State Flowchart

Idle

The default state of enemies within outposts, the Drone Operator performs sweeps and scans of the outpost. The operator should be placed in a central location with levels, ideally high up and well protected, like a sniper tower. This allows the Drone Operator to communicate with nearby guards should their drone go down, view their surroundings, and

to ensure they have a solid range to their drone around the base. Positioning them centrally also makes them more challenging to reach silently, making it more rewarding for players who enjoy that playstyle.



Figure 5: A potential operator nest. While not centrally located, this outpost is small. The operator has strong visibility and solid protection on the sides.

The operator themselves should be stationary, remaining in their nest. Reaching them should be challenging and rewarding but having them moving around could make it too hard to find them, while also potentially creating scenarios where it's very easy to take out silently.

The drone should be performing sweeps based on pathing information around the outpost. Pathing should take advantage of the drone's aerial mobility to create non-traditional path links, such as quickly moving from the ground to a rooftop, flying through windows and similar holes in the environment. The drone should be able to hover anywhere from 0.5m to 3m above the ground.

Investigation

As the Drone Operator is a single unit composed of multiple entities, there are a few different ways that investigation will need to be handled, as illustrated in the above flowchart.

If the drone is destroyed, and the cause did not cause an alert elsewhere, the operator should bark at nearby outpost guards to investigate the crash. Similarly, any nearby guards who hear the crash should also come investigate on their own. While the guards investigate, the operator should begin to prepare another drone for deployment.

Should no guards be present to investigate the crash, the Drone Operator should investigate the crash themselves. While logically, the operator should send out another drone to investigate the crash, the most likely reason that there are no other guards to investigate is because the player has already taken them out. This would force the operator out of their nest and to use their sidearm, providing players a fun opportunity for a takedown.

If the operator sees something suspicious with their own eyes, they should consider its proximity. If the source of suspicion is nearby, within 33% of their detection range, they should investigate it themselves, armed with their sidearm.

If the source of suspicion is outside of the 33%, the operator should interrupt the drone's current command and force it to investigate what they just saw, keeping themselves at a safe distance.

Combat

Once combat begins, the operator should begin to move towards the engagement while remaining at the outer edge of the fight, behind as many enemies as possible. During this initial move from the nest to the combat area, the drone should attempt to intercept the operator and then begin to follow him. Move to cover that are near line of sight with the player, or within line of sight if no other positions exist. The Drone Operator should then attempt to remain within the minimum and maximum range of their combatant, repositioning whenever they fall out of this range if safe to do so.

From this position, the drone and operator can engage in combat, making use of the Drone Functions listed in the next section. Should the drone be destroyed during combat, the operator should attempt to retrieve a new drone from their nest if it is safe to do so. If this is not the case, then they should make use of their sidearm until the opportunity presents itself.

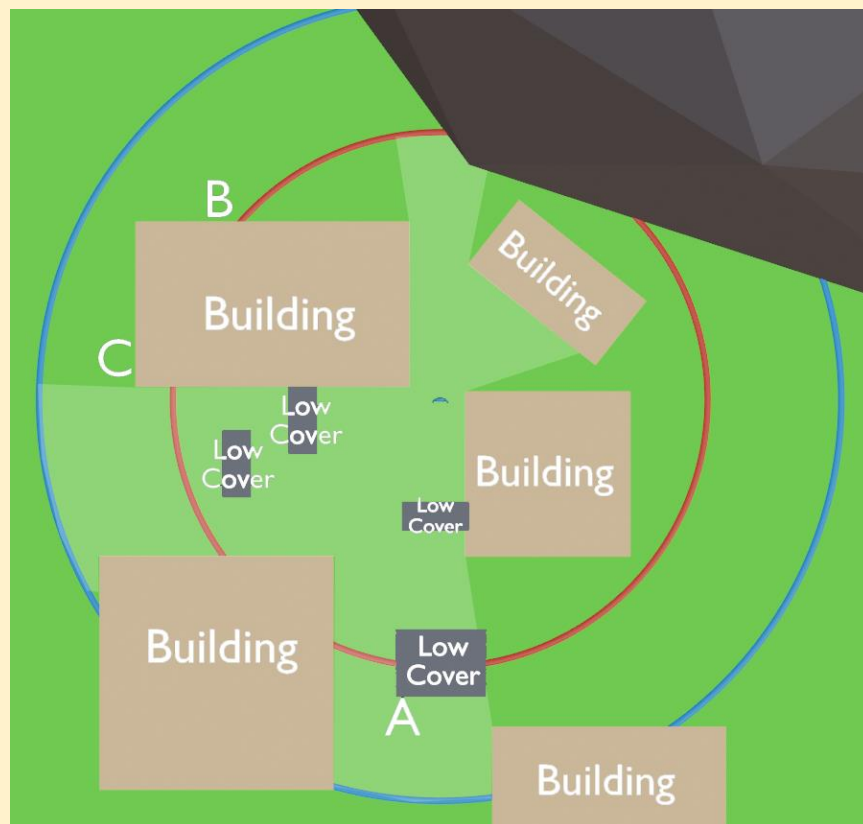


Figure 6: Combat Positioning. The rings represent the minimum and maximum distance from the player, shown at the center. The light area represents areas directly in line of sight of the player. The operator must choose cover in areas between the two rings. A is not ideal, as it is directly within line of sight. B is a poor choice as it is far from line of sight. C is the ideal choice, as it is near line of sight, without being directly in it.

Suppression

If the operator's position begins to take fire from the player while the drone is still active, the drone should move to intercept the player, diverting them. While this happens, the Drone Operator should attempt to retreat to a safer position or flee. If the drone has been

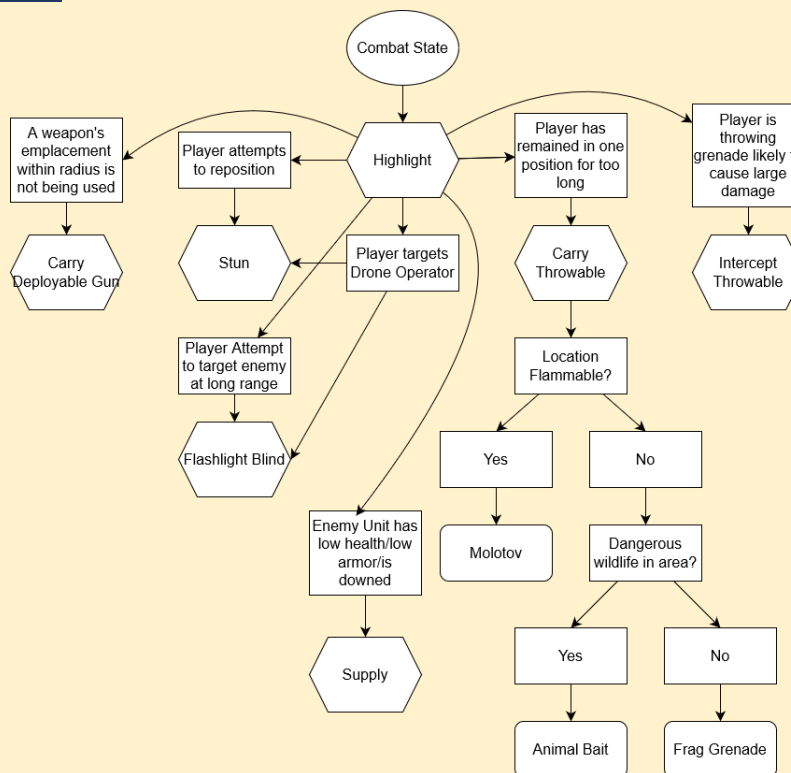
destroyed, the operator should stand their ground and attempt to fight the player using their sidearm.

Sniping

Sniping from outside a base is a common strategy among players, and enemy AI often have a difficult time fighting this play style. Boosting the usual drone range to 100m when a player is detected to be sniping from a point that the outpost guards can't reach enables the drone to make use of its drone functions to push the player out of their position, while the operator remains safe within the outpost.

Players will still be able to focus on attacking the Drone Operator either before he can get to a safe space or use his movement to the nest and back to retrieve new drones to continue sniping if this is their preferred playstyle.

Drone Functions



Highlight

Highlighting tracks the player, illuminating them and sharing their position to any nearby enemies. The drone should stay at a 3-5m radius and not get too close, especially in doors where the drone becomes an easier target. Sound, lighting and a light pattern on the drone itself should be used to clearly indicate when it is attempting to highlight the player.

Stun

A simple punishment for players who choose to ignore the drone instead of dealing with it, dealing a small amount of damage while also reducing their movement speed and turning speed to throw them off for a short amount of time. Should be used when the player has

several enemies coming from multiple directions, as well as when they attempt to reposition themselves.

The stun should have a long charge up time with an accompanying audio cue to players can anticipate the attack and fight off the drone before it can deliver the stun.

Flashlight Blind

A simple trick to make it more difficult for the player to hit their targets, forced to deal with a lens flare obscuring their view. Can be dealt with by firing at the drone to get it to briefly disengage or destroying it entirely. Should be triggered when combating enemies at a longer range.

Intercept Throwable

Catch! Intercept any throwables used to target large groups of enemies, and either dispose of them, or use them against the player. Items like grenades have the potential to destroy the drone mid-air, sacrificing itself.

Carry Throwable

Make use of one of the throwables within the Far Cry sandbox against the player. Grenades and Molotovs, and even animal bait can be used in the right conditions to force the player to become mobile.

Supply

As enemies need supplies, the drone should scan the environment for supplies and bring them to the enemies, such as armor, health, grenades, and other pickups.

Carry Deployable Gun Emplacement

An attempt to make the environments more dynamic, allowing gun emplacements to be replaceable in new positions can change how players interpret their environment. The drone should find unused gun emplacements within its movement radius and reposition them to more useful positions for the current engagement. The positions the drone can place the guns should be hand placed by level designers to ensure intentionality.



Figure 7: An example of how flashlight blinding may obscure parts of the screen, making it difficult to aim.



Death

Death can come in multiple forms for the Drone Operator. The only way to safely eliminate them is through a stealth take down, which engages the return to nest functionality, where they will be removed from play. All other methods of engagement will result in some form of negative consequence.

Strengths and Weaknesses

The Drone Operator excels at surveillance, increasing the difficulty of infiltration with new pathing possibilities and speed. Players who want to effectively clear outposts without making anyone aware of their presence will be faced with the unique challenge of finding and navigating their way to operator's nest.

It also effectively improves combat, strengthening the existing roster of enemies and appearing again and again if you neglect to deal with the operator. It

The biggest weakness of the enemy is the element of surprise. If players

manage to eliminate the Drone Operator before they can get into position, the challenge becomes trivial. However, ensuring the enemy is placed in a difficult to reach location should still leave players satisfied as they eliminate them, overcoming the challenge of locating them and a suitable sightline.

Accessibility Concerns

Ensuring the game is accessible to as large an audience as possible is important, and the Drone Operator does present some unique challenges.

The increased verticality of the game because of the drone is an exciting challenge for some, and a chore for others. Providing an option sticky aim assist should aim those who have difficulty maintaining aim on the target.

There is also the issue of knowing the position of the drone. Audio is a big part of how the drone communicates, alerting players to its presence from a distance, while also being used to alert players of certain actions, such as the stun, or deploying of throwables. A directional



Figure 8: Directional Audio Indicators in Fortnite (Gamespot)

audio indicator as part of the game's overall accessibility suite of options could enable players without access to auditory information to process this information, and ensure they're not left at a disadvantage.

Process and Associated Design

Art and Visual Design

The Drone Operator presents a unique set of challenges for visual design, as there are both functional and communicative goals that must be achieved to ensure success.

Operator Silhouette

It's important that the operator have a clearly defined silhouette that makes it easy for players to identify them, as well as allow them to fire at the Drone Remote Controller to disable drone control without killing the operator (See: [Drone Remote Controller](#)).

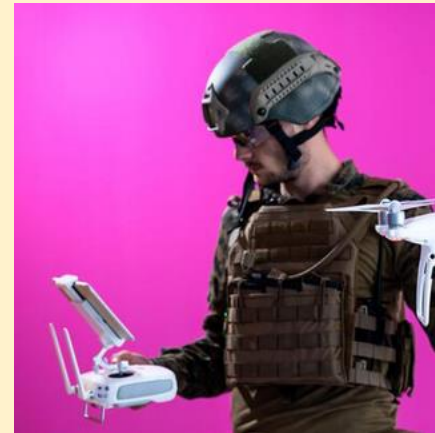


Figure 9: Potential Operator Silhouette. The Drone Remote Controller is clearly visible.

Throwables on the Drone

The drone can carry and make use of throwables from its operator by dropping them from where they're attached. This enables the use of grenades, Molotov cocktails, animal bait, and more. An effort should be made to make these throwables naturally visible and identifiable on the underside of the drone so players can make informed decisions. A possible approach includes having the underside of the drone glow to inform players that something is attached there. However, it is possible that this is not feasible, and a UI based solution using the existing threat indicator system may be applied.

Distinguishing multiple Drone Operator Pairs

Should multiple Drone Operators be present in a single firefight, the player should be able to distinguish which drone belongs to which operator. There are multiple possible solutions to this issue, though playtesting should be used to determine their effectiveness.

One possible solution includes color and pattern coding the drones to their operators, using accent colors and lighting on the drone and its operator. A slow, pulsing light pattern on the drone and mirrored by the lighting of the Drone Remote Controller might address the accessibility concerns of using color to communicate information.

Alternatively, offering several distinct designs of drone, and pairing them to operators with similar design elements should help make drones appear more distinctive, though this carries a high asset cost.

A more technical solution would involve ensuring that drones never cross one another on screen, ensuring that the most vertical line being drawn from a drone to operator is always drawing the correct connection.

Animation

To justify the scale and size of the drone, as well as the long-time cost of actions of the Drone Operator, animations should be weighty, emphasizing that this drone is powerful and built strong.

The drone should also have a strong tilt as it flies at speeds, making it a bigger & easier to hit target while it moves.

Scanner Vision Cone

When the drone is searching for intruders, a visible cone of light approximating its visual perception should be visible to ensure players move with confidence, knowing exactly where the drone can and cannot see.

Takedowns

Performing a takedown on the operator should be the only way to safely and silently eliminate both the drone and its operator at once. Offering the variety of takedown animations while also visually showcasing the player calling for the drone to return home would result in doubling number of takedown animations. Instead, a UI or audio solution communicating that the drone has been commanded to return to base and disable itself is our best option.

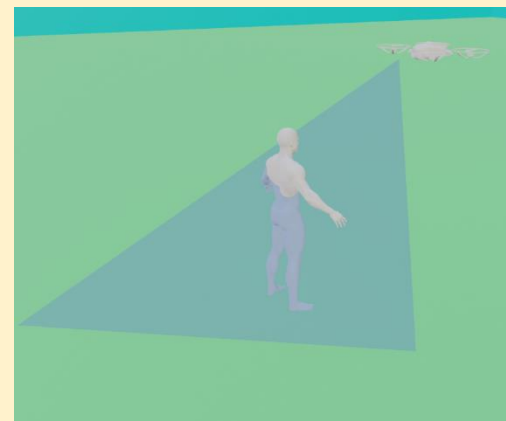
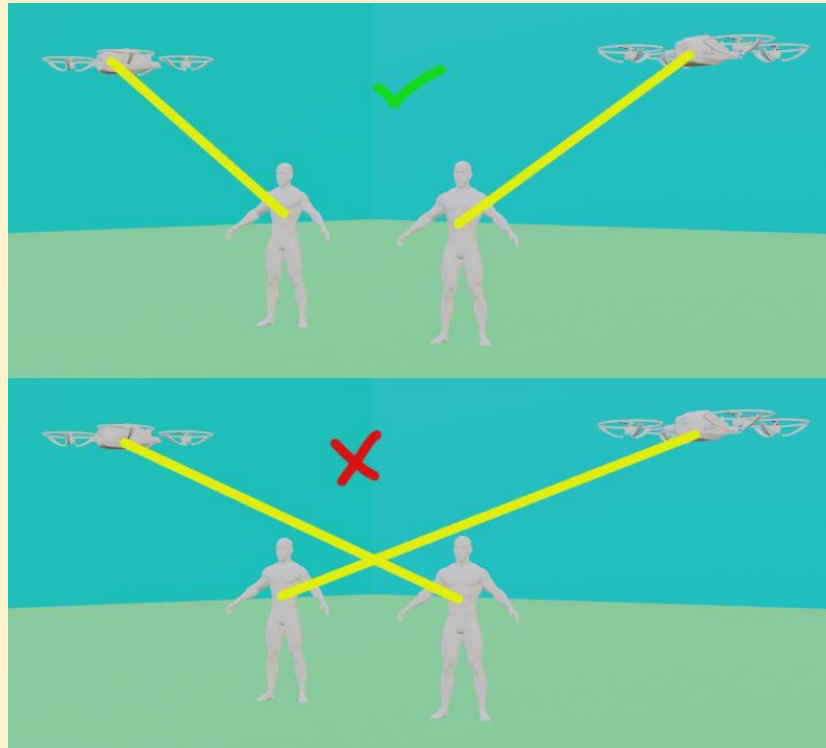


Figure 10: An example of the vision cone, semi-transparent

Sound Design

An important part of the Drone Operator is the audio design, a keyway to communicate information. The drone should be loud enough that it's presence when nearby is clear. Players should always be aware when a drone flies near them. It would be unfun for a sniper player to be surprised by a drone dropping a grenade on their head. However, ensure that the audio for the drone is not annoying, as players may be forced to hear it for quite some time.

Sound could also be paired with specific behaviors, priming the player for when the drone will attempt to drop items, deploy weapon emplacements, blind the player, and more.

Task List

Department	Task
Art	Drone Model
Art	Drone Animation Set
Art	Operator Modified Animation Set (Holding Drone Remote Controller)
Audio	Drone Movement Audio
Audio	Drone Function Audio
Writing	Operator Barks
UI	Drone Return to Nest on Operator Stealth Takedown

Player Experience

For the infiltrator, the drone is reason to pay more attention. As inanimate objects can't be tagged, these players need to rely on their ears to make sure they know the drone is coming. When that happens, they need to be careful as the drone moves quickly. Avoid windows, stay out of sight, stay calm, and make sure you didn't leave any bodies out.

The drone's path is difficult to memorize and predict. With its aerial movement and variable distance from the ground, observing it from a single vantage point would not reveal its entire path.

The drone is also quick to investigate any abnormalities to be suspicious of, as it can fly directly to them. This forces infiltrators to act quick when they do get the attention of any enemies.

For the combatant, the drone adds several layers to combat. The drone acts as a major thorn in the players side but attacking it directly will only temporarily solve the issue. Instead, the player needs to prioritize enemies, and decide how best to carve their path to the operator.

It also recontextualizes the arenas they fight in. While the flame propagation system already resulted in wildly changing safe zones, enabling the AI to make use of it whenever the player begins to stay in one area for too long means that players are either forced to play even more defensively, preventing the drone from being able to firebomb their environment, or forced to stay mobile. This extends beyond the range of the outpost and now into the surrounding areas, solving the dominant sniping strategy.

Systemic Design and Differentiation

The drone operator is uniquely positioned to engage with the systemic design elements of Far Cry extensively. With a focus on avoiding direct damage to the player, the drone instead makes use of the game's many systems to create interesting scenarios.

When the drone detects a player and focused on highlighting them, they are engaging with the light system, illuminating them for other enemies to see. This makes the drone particularly effective at night, tying into the game's day/night cycle.

The drone also makes use of both flame propagation and wildlife in a unique way. Both systems are used when a player isn't engaging in enough mobility, using the drone to force them to move. The usage of Molotovs in highly flammable locations such as the wooden buildings or meadows or animal bait in areas with dangerous predators will result in unexpected situations that can quickly get out of control for players who aren't aware enough, resulting in fun and memorable moments and personal stories that they can share with others.

This focus on making use of systemic design as the primary method of engagement with the world was a major influence while creating this design, as it pushes the potential of what is possible within the possibility space of Far Cry and creates the potential for engaging emergent narrative.

Conclusion

The Drone Operator is built on Far Cry's DNA. Making extensive use of the systemic design already present within the game, and giving the world the nudge it needs to create havoc for the player based on their playstyle, it engages with many people's favorite aspect of Far Cry - the extreme ends of its systemic spectrum, when each aspect of the game is engaging with one another to create an incredibly unique experience. By responding to how the player chooses to play the game, it's removing the onus on the player to be creative and to create these insane scenarios, instead enabling it to happen just by enjoying the game. It also encourages players to engage with the full spectrum of playstyles, as flexibility is often the solution to the issues presented to you by the Drone Operator. Collectively, these elements make the Drone Operator an essential addition to Far Cry.