



Concept by
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The Big Picture

What is Swarm?

Swarm is a **bug-themed, third-person** multiplayer online battle arena (**MOBA**) where the common central mechanic of pointing and clicking with a mouse is replaced with real-time fighting mechanics via hand-held controls (like PS4 or XBOX controller). Swarm fuses the strategy of a MOBA (the macro) with the high-speed decision making of a fighter game (the micro).

What's New?

While Swarm is derivative of the common MOBA, it is truly unique because fighting mechanics do not currently exist in any MOBA. Imagine a game like DotA without the pointing and clicking but controls similar to those of Super Smash Bros. Swarm also uses third-person follow-cam view, as opposed to all MOBA's (with the exception of "Smite"), which use a top-down, isometric view. Furthermore, no MOBA has ever been released on a console.

Story

Two powerful bug colonies occupy mutual territory, one which lacks enough resources for both to prosper. Therefore, each colony has no choice but to destroy the other, which must be done by annihilating the *nest* in which the enemy colony's progeny, the *larvae*, develops. The world of bugs is cruel. There is no consideration for one's life, only one's kind. The choice is clear: genocide or extinction!

Platform

Gameplay: PC Game with Xbox Controller or PS4 Controller

As a fighter game, Swarm is incredibly fast-paced and action-packed. Thus, the control input must be synchronized with the player's reaction time and allow multiple forms of input, simultaneously.

Production: The current team consensus is that Swarm will be produced using the Unreal Engine.

Target Audience

Swarm is primarily geared towards experienced gamers who possess both peak mental acuity and dexterity for strategy and action. Nevertheless, there is certainly room for novice and intermediate gamers. In some cases, players may be much more adept to fighting games than MOBA's, or vice versa. Swarm is targeted to both of these types of players, as it fuses the experience of both demographics. Swarm may not be optimally suited for casual gamers, but a system that matches players by their skill, exemplified in previous matches, can enable casual players to be matched only with players at a similar skill level.

Game Goals

1. Make the first fully 3D MOBA, with **complete spatial movement** in addition to 3D rendering.
2. Raise the bar of competitive gaming by combining two unique competitive gaming disciplines into a larger, more demanding one.
3. Fully occupy the player by combining the big picture strategy of a MOBA and the split-second decisions of a fighter game.
4. Share knowledge about the real-life world of bugs through a fictional world inspired by it.
5. Start a MOBA franchise that will continue development beyond AGP and become publicly accessible.

Key Features

1. 3D fighting controls¹

There is a universal set of fighting controls that all insectoids have in common. This includes, but is not limited, to a punch, jump, shield, and dodge.
2. Real-time Strategy²

Swarm shares gameplay elements that are characteristic of the RTS. Players will control waves of fighting NPC's remotely. Unlike the standard RTS, players will also have a character with local coordinates in the arena.
3. Team play³

Each Swarm game has **two teams of 3, making a total of six players**. These two teams compete, and cooperation among teammates is essential for success.
4. Various playable characters with unique abilities and statistics⁴

Players will have a selection of multiple characters and must choose exactly one to play as for each game. Each of these players have a unique set of abilities and statistics determining the damage output of their attacks and abilities, damage resistance, movement speed, etc.
5. Currency that enables itemization of players and allied units to modify their statistics and grant them access to new abilities

In addition to innate statistics that vary among characters, itemization can enhance their stats. Players have the opportunity to gather currency throughout the entire game by accomplishing tasks on the field, such as last-hitting enemy workers. They can spend their earnings on their itemization, making a pivotal component to the strategy of the game.

¹ [Fighting Mechanics in Devil May Cry](#)

² [Real Time Strategy in Smite](#)

³ [Team Play](#)

⁴ [Items in Smite](#)

Art Direction

Much about the art direction is yet to be determined (specifically when we recruit the bulk of our artists). What we do know is that the game needs visual clarity to enable players to absorb information as quickly as possible to enable high-speed gameplay. The style would be far from cartoony but as realistic as can be supported with the Unreal Engine. Nature is a large emphasis of the game, considering the theme and the entire structure of the arena. Features such as shadows, reflection, transparency, influence of wind, and moving water would be ideal.

The Arena

Just like in many MOBA, Swarm has an arena with bases and lanes connecting both of the bases.

Shape: The arena is 3D. It can be traversed in all three dimensions. The bounds of the arena are approximately spherical.

Nests: There are two nests corresponding to each colony, each on opposite sides of the arena. Insectoids and minions spawn at their respective colony's nest.

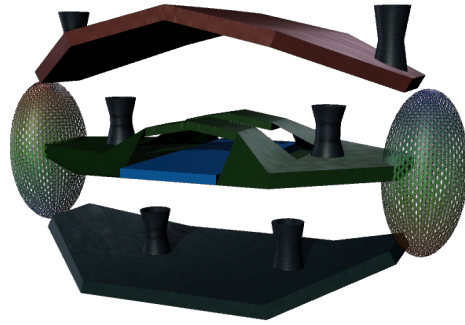
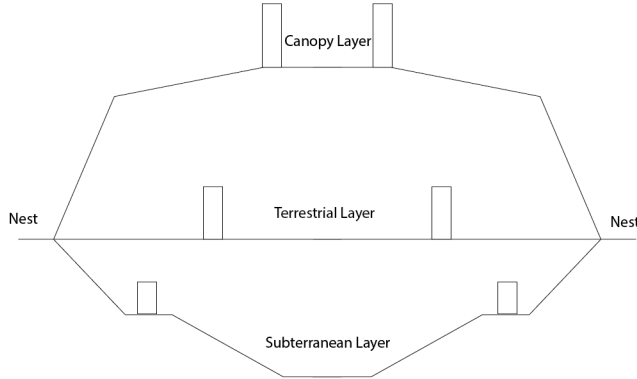
Layers: Unlike other MOBA's, Swarm has no lanes. Instead, there are three layers. These layers are for the most part horizontal surfaces, and they are separated vertically.

Each layer has a direct path between the two bases. What is on each side of these paths is to be decided. What is known is that they will involve a concept similar to "jungle camps" from other MOBA games and several access points to enable "ganking" from other layers.

Terrestrial Layer: The Nest reside in this layer, also it contains the shortest path between the nests. Features of this layer are mostly what would be found on a forest floor, such as grass, rocks, and flowers. There is also a stream that runs across the layer, somewhat perpendicular to the path between the nests.

Canopy Layer: This is the top layer. Two trees, sprouting from near each nest, meeting at the tips of their branches to form an arch above the Terrestrial Layer. Unlike the other two layers, this layer has a discontinuous topography. Tributaries of leaved twigs emanate from the major branches forming the nest-to-nest path in various directions, meeting and intersecting along the sides of the layer.

Subterranean Layer: The layer is formed by an underground tunnel between the two nests. The tunnel winds and branches off at a number of areas, forming smaller tunnels and chambers.



The Arena shape viewed from the side. (It also looks like a bug :D)

Inhabitants


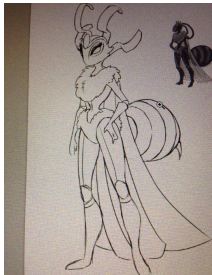
Insectoids

Insectoids are the main characters in Swarm. Each game, players can choose one among a variety of insectoids to play.

Insectoids have the appearance of anthropomorphized bugs. “Bugs” of course includes insects, yet it also includes spiders, worms, and myriapods like centipedes and millipedes.

Aside from appearance, the most distinguishing feature of an insectoid is its set of unique abilities. These abilities define the playstyle of an insectoid to a large extent. Abilities offer insectoids specific mechanics in addition to their basic ones, such as moving and fighting. An ideal insectoid’s ability set is designed such that the abilities function in a way collectively that they could not independently. **No two insectoids share any abilities**, but some may have similar effects.

Below are some sample Insectoids.

Insectoid Name	Passive Ability	Ability 1	Ability 2	Ability 3	Ultimate Ability
<p>Warmica</p>  <p>The Shaker of Mounds</p> <p>Warmica is a quintessential bully. He is a mercenary warrior, using only his fists and mandibles as weapons. Warmica's role is to deal hefty damage and control his opponent with physical force.</p>	<p>March</p> <p>After running outside of combat for a few seconds, Warmica's movement speed increases by a percentage and his next action attack has increased damage.</p>	<p>Mandible Handle/Mandible Suplex</p> <p>Mandible Handle: Warmica lunges toward an enemy and grips it with his mandibles for up to a limited time. If he successfully grabs an enemy, he can activate it again to perform Mandible Suplex.</p> <p>Mandible Suplex: Warmica uses his mandibles to suplex the enemy he is currently grabbing.</p>	<p>Atlas Chucked</p> <p>Warmica lifts an object, enemy, or ally over his back and can hold it indefinitely, at the cost of mana over time. Activate again to throw what Warmica is holding.</p>	<p>Trench Warfare</p> <p>Warmica jumps toward a location and slams the ground, forming a trench. Whatever is caught in this attack is trapped in the ditch until it can escape. The ditch disappears after a short time.</p>	<p>P.O.W.</p> <p>Warmica grabs the edge of one of his ditches by opposite ends and slams it shut, damaging and trapping all enemies and expelling all allies inside it.</p>
<p>Vexpula</p>  <p>The Princess Bee</p> <p>Vexpula has long been waiting to take the throne, but she has never waited to give an order. More than anything, her words can sting, but her stinger does a pretty good job at that, too. Vexpula's playstyle is primarily based on commanding her subjects to do her bidding.</p>	<p>Servant's Oath</p> <p>Every time one of Vexpula's servants stings an enemy, it gives up its life, granting her a permanent increase in armor and immunity, for Vexpula.</p>	<p>Drone Strike</p> <p>Vexpula summons a drone at her location and commands it to fly toward her aimed location. The drone stings the first enemy it contacts, inflicting damage and knockback.</p>	<p>Fight or Flight</p> <p>Vexpula summons a worker bee with honey, which appears at a set distance from where she aims. The worker bee flies toward Vexpula. If it reaches her, Vexpula will regain some health. If it collides into an enemy, it will damage and slow the enemy significantly but will be unable to deliver the honey to Vexpula.</p>	<p>Her Majesty's Sting</p> <p>Vexpula lunges stinger-first a certain distance toward the direction she aims. If she collides into an enemy, she lands on the enemy with her stinger, momentarily stunning it.</p>	<p>Hive Breakout</p> <p>Vexpula drops her hive down from the sky, inflicting high initial AOE damage. Upon landing on the ground, bees swarm for a short time, inflicting additional AOE damage.</p>

<p>Mosferatu</p> <p>The Sanguinary Investor</p> <p>[No image]</p> <p>Based on the mosquito</p>	<p>Blood Bank</p> <p>Mosferatu has no cooldowns. Alternatively, he stores blood that he draws from enemies into his Blood Bank and expends it to use some of his abilities. Periodically, the Blood Bank accumulates interest, and the current amount of blood it contains is compounded. The Blood Bank begins with a limit on how much it can contain, but if the interest causes the total amount of blood to exceed the limit, it will permanently increase by the excess amount.</p>	<p>Blood Thirst</p> <p>Mosferatu aims his proboscis toward a single non-allied target. If it lands on an enemy, the enemy continuously takes damage while Mosferatu gains blood in his Blood Bank. The effect will end only when the enemy exits the range of this ability.</p>	<p>Blood Rush</p> <p>Mosferatu expends blood from his Blood Bank to increase his movement speed.</p>	<p>Blood Bath</p> <p>Mosferatu aims at a target area, causing it to rain blood over the target area, while drawing from the Blood Bank. The area can be moved at will while Bloodbath is being cast. Any units in the area will take damage and be covered in blood for a short duration, during which a path of spilled blood on the ground will follow their movement. Mosferatu can travel over the blood to refund it to the Blood Bank.</p>	<p>Hemo-rage</p> <p>Whenever Mosferatu's Blood Bank is completely full, he can activate Hemo-rage. Hemo-rage stays active until the Blood Bank is completely empty. Meanwhile, the blood in Mosferatu's Blood Bank violently swirls around Mosferatu, creating area of effect damage around him and rapidly expending blood from the Blood Bank. In addition, similarly to Blood Thirst, Mosferatu draws blood into his Blood Bank from all non-allied units within the area of effect and damages them. However, the effect applies whenever a unit is within range.</p>
<p>Dynastus</p> <p>The Triple-Edged Sword</p> <p>[No image]</p> <p>Based on the hercules beetle</p>	<p>Chivalry</p> <p>While in combat with another insectoid, Dynastus gains bonus physical strength over time. This bonus decays rapidly over time while out of combat.</p>	<p>Duel Blades</p> <p>Dynastus uses both of his swords at once on his next basic attack, inflicting extra damage.</p>	<p>Valiant Whirl</p> <p>Dynastus rapidly spins around with his swords extended outward, creating area of affect damage around him. Every time he hits an enemy, Dynastus temporarily gains movement speed.</p>	<p>Intrepid Challenge</p> <p>Dynastus shouts loudly, taunting all enemies facing away from him. Intrepid Challenge affects all enemy insectoids in front of Dynastus in a cone.</p>	<p>Trinity Joust</p> <p>Dynastus extends his swords in front of himself, tilts his horn forward, and charges forward a long distance. All non-allied units Dynastus collides into in his path receive damage and are pushed toward the end of his path.</p>
<p>[No Name]</p> <p>The Deathless yet Lifeless</p> <p>[No image]</p> <p>Based on the cockroach</p>	<p>Anything to Survive</p> <p>When [name]'s health is below a certain percentage, [name] will steal up to a percentage of the maximum health, over time, of all nearby units, including allies.</p>	<p>Sticky Shield</p> <p>Passive: Whenever [name] activates his shield, [name] covers it in a sticky coat. If [name] is hit by a fighting move while his shield is active, the attacker will get stuck momentarily, in addition to the standard effect of the shield.</p> <p>Active: If the sticky shield is up, [name] can burst it open and splash sticky fluid radially. The shield effect will be lost, but nearby units will be poisoned.</p>	<p>Nuke Absorber</p> <p>[Name] braces himself and becomes stationary for a short duration. Meanwhile, [name] will absorb all area of effect damage within a range.</p>	<p>Photophobia</p> <p>Passive: [Name] gains movement speed whenever he is running toward a location exposed to less light than his current location.</p> <p>Active: [Name] dashes in a direction. The amount of distance he covers is directly proportional to how dark his starting location is. Any units he collides into will take damage and stop him in his track.</p>	<p>Blackout</p> <p>[Name] fills a spherical area around his current location with pure darkness, completely obscuring the vision of all enemy insectoids lacking night vision inside it during the duration. The sphere lasts for a moderate duration and is stationary, throughout.</p>

Workers

Workers are dispensable bugs that assist insectoids in their objective to invade and destroy their enemies' nest. Being simple creatures with very few functions, they are biologically programmed to commit their fragile lives in service of the colony. Players cannot control workers directly but can implement them indirectly. What distinguishes workers in Swarm from "creeps" in other MOBAs is that they can undergo *metamorphosis*, which is controlled by their team.

Sentinels

Sentinels are creatures that are bound to certain parts of the arena. They each have allegiance to one colony and defend its nest by impeding the progress of enemy workers and insectoids toward it. They are similar to turrets in MOBA's. There are two types of sentinels. Each colony has three vanguard sentinels, one positioned on each lane, and one guardian sentinel, positioned near the nest.

In Swarm each sentinel behaves uniquely, creating a different "laning" experience for each layer.

Neutral Monsters

Neutral Monsters are fightable creatures that are unaffiliated with any colony. Killing them can be beneficial to either colony. They are not necessarily bug-like but can resemble small creatures that would share a habitat with bugs. They can exist on all layers of the arena.

Game Structure

Pre-game: Insectoid selection

Before the game begins, all players must select the insectoid they will play for the entire game. They may choose an insectoid among the insectoids that are available to their user account. They must also specify which role they will take. No two players on the same colony can select the same insectoid.

Core game structure

The primary objective is straightforward: the first colony to destroy its enemy colony's nest wins. A colony can achieve the primary goal by destroying the enemy colony's sentinels, which obstruct the paths to the enemy nest by attacking intruders, and then directly attacking the enemy nest.

Since the sentinels are so powerful, insectoids cannot destroy them or pass them on their own. They must therefore use their colony's workers to take the damage from the sentinels. Both teams have workers, beginning at equal power, so the **insectoids must compete against the enemy insectoids to help their own workers advance**. Insectoids interfere with the enemy workers' progress by helping their own workers kill them, and they can interfere with their enemy insectoids' progress while doing so by attacking them. **Insectoids can attack with a universal set of fighting moves, which have no usage limitations, and they can attack with their unique abilities, which may cost resources or have cooldowns.**

While the game progresses, players gain currency, primarily by killing enemy workers, sentinels, and insectoids. Players spend their earnings on items for their insectoids *and* for their workers. Items can enhance stats, offer additional passive and active abilities, and induce *metamorphosis* of workers. Insectoids and workers can have a limited number of items, and workers have a limited number of metamorphoses.

Core game phases

The flow of the game can be described in three phases: **the early game, the mid game, and the late game.**

The *early game* is when the players on each team assume the role they bid for during the pre-game selection phase by occupying the corresponding part of the arena (i.e. their layer).

The *mid game* usually begins when one or more of the players have destroyed a sentinel, essentially “winning” the layer. Since at least one lane has gained the advantage, the player who won the layer has some freedom to roam to other layers to help his team. The layer winner will also need to outsource in order to continue gaining currency, for the opposing worker waves will reach equilibrium farther away from the ally base. Even though a sentinel is destroyed, the colony will not yet be able to access the nest, due to the presence of the much more powerful guardian sentinel. The insectoids and workers need to become stronger, which can be accomplished by itemizing the insectoids and workers.

The *late game* begins approximately when every insectoid has reached maximum level and is almost fully itemized. Colonies will frequently fight in teams, competing for the final advantage they need in order to finally destroy the enemy nest.

The entire game should take approximately 30 minutes.

Production Plan

The number of types of insectoids, workers, items, etc. can be virtually unlimited. However, we need to scale the numbers down to a year scope. Below are the planned quantities:

- 1 arena with 3 layers
- 3 types of sentinels
- 3 insectoids minimum, ideally 6
- 3 basic workers and 2 metamorphosis of each, a total of 9 creatures
- 20 total purchasable items
- 0+ neutral monsters (stretch goal)

Below is a table of broad tasks, corresponding to their categories, and their estimated start times and deadlines. In summary, the majority of the concept and design will be finished by the middle of this summer. The core mechanics and controls will be finished by fall showcase, marking the beginning of alpha. The next semester will be dedicated to balancing, bug-fixing, polishing, and publicizing. Beta will start at spring midterm. Since so many things will be happening concurrently, this start and end model is the way we believe best represents our time estimates.

Task Estimates

Task	Start	Deadline
Concept art (Art)	In progress	July 15, 2015
Environment design (Art)	In progress	July 15, 2015
Modeling (Art)	In progress	December 1, 2015
Texturing and Shading (Art)		
Rigging (Art)		
Animation (Art and Engineering)		
Character Control (Engineering)	In progress	August 15, 2015
Core mechanic (Engineering)	In progress	October 15, 2015
AI (Engineering)	In progress	October 15, 2015
Client Networking (Engineering)	May 1, 2015	October 15, 2015
Game Networking (Engineering)	August 15, 2015	December 1, 2015
Balancing characters and items (Math)	October 15, 2015	March 1, 2016
Particle effects (Art and Engineering)	November 1, 2015	December 1, 2015
UI (Art)	November 1, 2015	December 1, 2015
Gameplay/playtesting (Engineering)	December 1, 2015	May 1, 2016
Extra character addition	December 1, 2015	May 1, 2016
Poster and Cinematics (Art)	December 1, 2015	March 1, 2016
Final polishing and further development	January 1	May 1, 2016

Team Roles

Role	Number
Executive Producer	1
Assistant Producer	1
Artist Lead	1
Animation Lead	1
Design/Concept Lead	1
Engineering Lead	1
Technical Director/ Technical Artist	1
Artists 2D	3+
Artists 3D	10+
UI Artist	1

Engineers	8+
Sound Designer	1
Script Writer	1
Testing and Quality Control	6+
Level/Stat Balancer	2+

Current Roster

Name	Role	Degree Program/Year	To be Enrolled
Sumeet Khobare	Lead Producer	MS CS Games	YES
Ajinkya Limaye	Lead Designer	MS CS Games	YES
Uthara Thelagar	Lead Artist	MS CS Games	YES
Stephen Pettinati	Lead Engineer	MS CS Games	YES
Jorge Quero	Gameplay Designer	BS CS Games, Senior	N/A
Lika Liu	Balancing Designer	MS Mathematics	No
Brittany Beidleman	Designer	BA IMGD, Junior	No
Vivek Embrandiri	Engineer	MS CS Games	YES
Duo Zhao	Engineer	MS CS Games	YES
Meryl Hu	Engineer	MS CS Games	YES
Bach Dinh	Engineer	BS CS Games, Senior	No
Michael Goulis	Engineer	BS CS Games, Senior	No
Sura Kaylan	Animator	MFA Cinematic Arts	No
Boris Yu	Animator	BA IMGD, Junior	No
Sikander Sidhu	Script Writer	MFA Cinematic Arts	No
Zhen-Zhong Luo	Engineer	MS CS Games	No