Shape Swarm GDD

V2.1

A game of swarm summoning

High Concept

Game description/goals

Shape Swarm is a top down/isometric 2D game focussing on swarm based combat. The players make battle by building up their swarms to a massive scale and colliding them into each other. The swarms are made up of different shaped units which can be indirectly controlled by moving them into preset formations, these units each have a unique attack/attribute.

Goals:
1. Unique and satisfying combat which is easy to learn but hard to master. More experienced players should be able to combine/use formations to create attacks suitable for their situation.
2. Ramping intensity in battles, as the players swarm gets diminished in battle the chances of the player's main character dying increases.
3. Feeling of power and progress, we want the players to feel that as their swarm increases in size that they become a force to be reckoned with.
4. Fast paced and challenging, players constantly need to build up the swarm in order to stay competitive.
5. Quick to jump in, we want the game to be quick to set up so users can get straight into the action.
6. Large amounts of particle effects going off during battles to add to feel of fast paced gameplay.

Inspiration

The game draws inspiration from the games:
- Agar.io, the feeling of getting more powerful as the player grows
- Mount and blade warband, collecting units with varying levels
- Shoot'n Grow, simple shapes and hectic gameplay
- Monument Valley, minimalist aesthetic
- World of Goo, visual inspiration
- The Halo series, game modes

Target audience

We are trying to aim for a low PEGI rating as possible to try and reach as large a demographic as possible. As the game uses shapes as the units, it is likely that it won't be labelled as graphic violence meaning we could hope to get a pegi rating as low as PG3+.

Our intended user is (but not limited to):
- 12 - 35 years old
- Enjoys challenging competitive gameplay
- Owns a next generation console
- Likes games focused on mechanics (not bothered by lack of narrative or minimalist graphics)
- Plays with friends either online or locally
- Buys games from online stores such as PSN or the Xbox Marketplace
- Doesn't suffer from epilepsy

Genres: Strategy, action

Game Mechanics

Core Mechanic

The game's core mechanic is the swarm based combat system. This mechanic allows players to grow and control a vast swarm through simple formations, resulting in huge, intense battles.

The player starts without any units, they must travel around the map summoning shapes from the ground, thereby adding them to their swarm (see ritual summoning mechanic). The player can then use these units to inflict damage to enemies by colliding them - they are also able to manipulate how the units are positioned in order to change the swarms shape and create new attacks (see formations).

The units that can be summoned each have a different effect when they impact, for example an AOE (Area of Effect) explosion. However, the player does not have access to all these units at the start. Each player starts with a single ritual which allows them to summon a specific unit, they can get access to more units by finding temples (see temples). players also start with a limited swarm size which increases as they level up.

Interactivity

What the player can do:
- Move around the map

- Shoot simple projectiles (when without any units)
- Sumon shapes from the ground using a ritual
- Change swarm formation
- "Ping" a unit in a certain direction
- Rotate swarm in both directions around the player
- Attack enemies and level up swarm capacity
- Find temples and unlock access to new unit types

The Player, the Units and the Enemies

The Player
Represented as a single cylinder shape. It has a simple low damage attack, the ability to summon shapes from temples, and the ability to control their formations. The basic attack is a simple projectile that is aimed similar to how units are fired in a direction. This attack has a very low damage output, taking two shots to kill a basic grunt, and is only available if the player has no units in the swarm. The player has the ability to gain xp, allowing them to level up, and increase their swarms capacity. The player only has 1 health point and respawns after death.
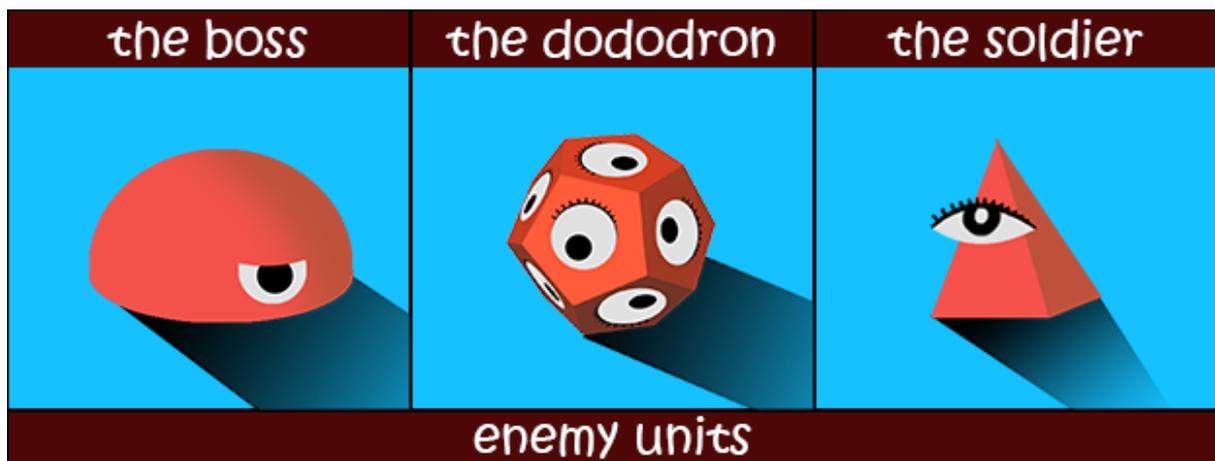

Units
There are five types of players' units, each a different shape. They have different damage outputs and effects.

- **The Diamonds** "Pawns"

- ○ Deals 1 damage.
- ○ 1 health point.
- ○ Stuns enemy for a second on hit.
- **The Pentagons** "Shielder units"
  - ○ Can't attack.
  - ○ 3 health points.
  - ○ They can be used as a shield to push enemies and create a wall to obstruct their way.
- **The Triangles** "Splitter units"
  - ○ Deals 1 damage per splinter.
  - ○ 1 health point.
  - ○ Splits into threes on impact.
- **The Stars** "Beyblade units"
  - ○ Deals 1 damage.
  - ○ 1 health point (lasts 2-5 seconds before death).
  - ○ Starts spinning when it collides with a unit and shoots off in one direction, hitting multiple enemies, dies after 2-5 seconds. Large knockback on whatever it hits (can split swarms up).
- **The Cubes** "AOE units" -
  - ○ Deals 1 damage to a maximum of three enemies in its AOE.
  - ○ 1 health point.
  - ○ Explodes on impact, kills a couple enemies and pushes out the rest, leaves fire behind for a short time that does 0.5 damage over time when walked on.

Enemies
- The Soldier "Basic peon" - do basic damage on units and players, but are easily killable. Attack similar to player's basic attack, projectiles that do 1 damage. These units can be seen all over the map and provide the player with the opportunity to collect a small amount of xp.
- The Boss "Blob" - can summon his own units, has a lot of health, and dishes out a lot of damage - only players with a lot of units can take him on. Moves randomly around the map and goes to "check out" temples. If the player fails to get the ritual from the

activated temple the boss consumes it and grows in size. The boss can summon and control units, for example moving them in a spiral.

● The Dododron "Mini boss" - does a lot of damage and she can summon a few pyramids, but she is not impossible to kill; killing her gives the player an XP boost, allowing to increase their swarm size. This enemy is spawned in random locations at random time intervals during the game, players are alerted to her location by three pulses emanating from it. In competitive modes she should cause players to all converge on her location creating opportunities for PVP fights.

Rituals/Temples

Ritual Summoning mechanic
Scattered around the map are "summoning fields", these fields are simply 2D coloured shapes on the ground which indicate the unit type that can be summoned from the location. If the player has the ritual that corresponds with the shape they can summon it. To do this they hold the left bumper, charging the ritual, when released it will summon shapes within its radius (the longer the button is held the bigger the radius, allowing more units to be summoned at once). The shapes raise up from the ground and then start following the player.
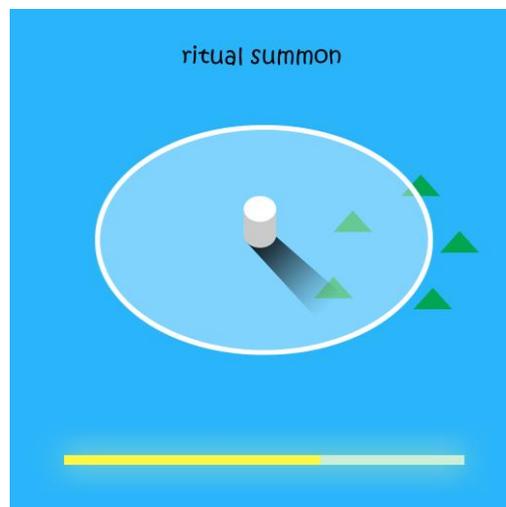
Temples
Temples are how the player gains access to new unit types, these temples are randomly scattered across the map. These temples appear as large squares on the ground and have a color that corresponds to the ritual that can be collected from it. The player activates a temple by moving next to it and using their summoning ability.

On activation the temple raises out of the ground and forms a tiered temple. It then spawns pyramid enemies around that attack the player. If the player is successful in defeating the spawned enemies it gives them a new ritual and crumbles to the ground (resembling the ruined walls). However the boss is alerted to any temple activations and will gradually make its way towards it. Failing to defeat the enemies will mean the boss is able to consume the temple and grow in size.

AI swarm behaviour

Movement

When units have been added to the swarm they will start following the player and will try not to collide with friendly units. This will give the swarm a fluid like motion when moving around. Many AI swarm simulations show this behaviour, the following links are videos illustrating how the swarm will likely behave when moving:

https://www.youtube.com/watch?v=F5fAL8ckK54
https://www.youtube.com/watch?v=M028vafB0l8

Formations

Formations are used when the player holds the corresponding button. It will cause units to move into a preset formation so long as the button is held, on release the swarm will move back to its original movement behaviour. The player can also rotate the swarm in a direction around them.

- Line formation, units will line up perpendicular to the player, forming a line.
- Expanding circle, units will form a circle that moves outwards from the player to a set distance.
- Spiral formation, units create a spiral shape around the player
- Wall formation, units form a wall in front of the player
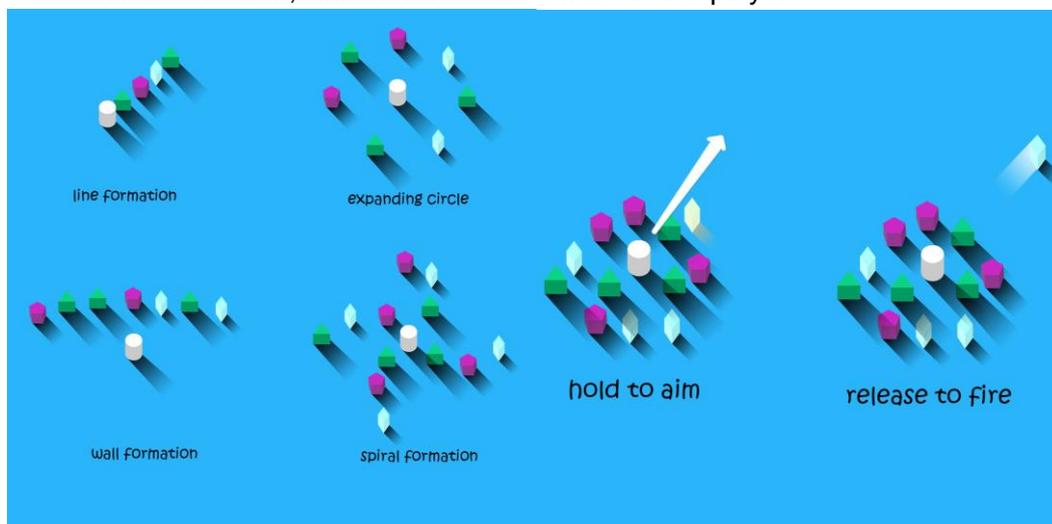
Soldier Behaviour

The soldier enemy moves about randomly in a general area and appear all over the map. When the player moves into their range they fire small projectiles that do 1 damage. If the unit has been summoned by the boss they will become part of its swarm and will follow formations similar to that of the players.

Dododron Behaviour

The dododron spawns randomly during the match and in different locations. When it has spawned it will either start rolling about its spawn area, or be asleep: this way, fighting the

dododron is not necessery, and it would be risky, but the player would gain a lot if they best her. After it spots the player it will start cycling through its attacks:

- Dash tackle, the dododron pauses for a moment as if charging up and then fires in a direction inflicting damage and knockback on anything hit.
- Slam attack, the dododron starts rolling like a dice and then bounces in the air, a shadow is cast across the ground indicating where it is going to land. On landing it creates a shockwave that knocks units back and leaves fire on the ground for a short duration.
- Basic attack, the dododron deals one damage if units collide with it.

Boss Behaviour

At the start of the game the boss drops into the middle of the map and creates a shockwave pushing players back from their starting position. Throughout the game the boss will patrol around the map, attacking players it comes across. When a temple is activated the boss moves towards it and consumes it if the player fails to collect the ritual (if multiple temples have been activated the boss moves to the closest one).

The bosses attacks are as follows:

- Can spawn in units and spin them in a spiral formation.
- Can jump and create a massive shockwave similar to how the boss starts the game
- Has a charge similar to dododron
- When the boss is on very low health it spawns in dododrons to aid it.

Multiplayer

Game Modes

- "You VS The Blob", standard game mode where the players work together to fight the
  boss and his peons and get stronger by gaining rituals and increasing swarm size.
- "You VS The Blob and EVERYONE ELSE", same as above except the players hunt each other down too.
- "King of the Hill", players have to control "the hill" in the centre of the map to get enough points, but if another player is in the hill, no one gets points. After a certain amount of time the ever shrinking level will be too small to play on and no one wins.
- "Kill or be killed", deathmatch, classic PvP mode, go nuts!
- "Unstoppable force", essentially Juggernaut from Halo, one player is really powerful but everyone else is out to kill them - the person who kills the juggernaut however becomes the new juggernaut, and in turn gets hunted by the other players.
- "Swarm-ball", all players only have pentagon units and try to get a ball into the middle to score a goal (the goofiest idea, probably not high priority).

Singleplayer

In addition we could add singleplayer modes for people without friends or no internet access. If chosen, the player can play all of the game modes above either completely by themselves, or with other NPC "players".

Environment

The map

The map is a large cylindrical shape (or another lofted shape) that is viewed at a slightly isometric view. The map has no borders, meaning the player and their units can fall off the edge.

Summoning fields

Summoning fields are scattered across the map in random locations. They are grouped by the type of unit that can be summoned from them, for example you may have a cluster of triangle summoning points.
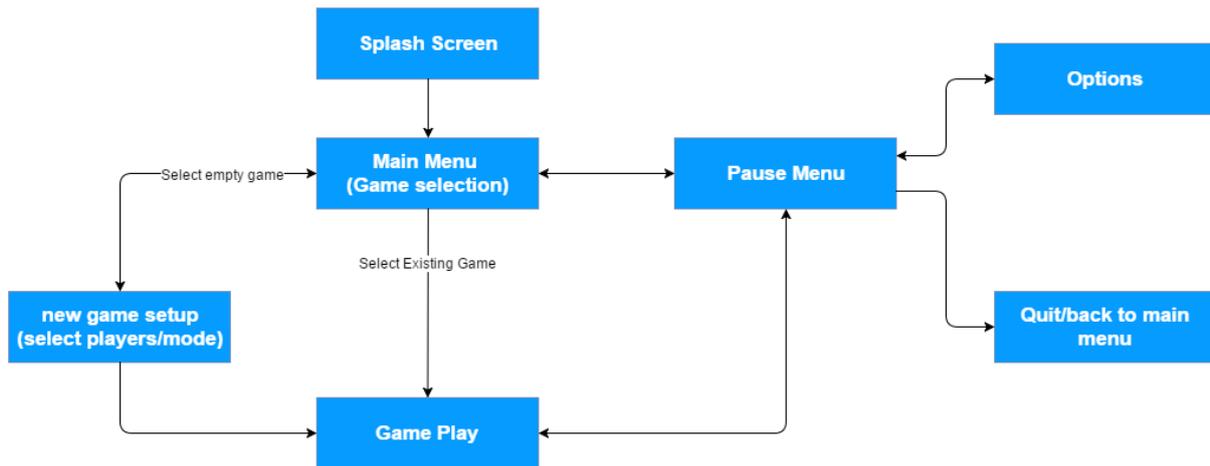
Temple locations

Much like the summoning fields temples are randomly positioned around the map, there will be enough for every player to get all the unit types.

Ruins/walls

Walls are scattered around the map, providing players with a blockade to hide behind.

User Interface

Menu Flow Chart

Mock ups

Main Menu

After the splash screen the user will be presented with a field of platforms that shows games being played and that are joinable. The player navigates through this space highlighting platforms that they can then join by pressing the select button. When hovering over a platform the camera smoothly snaps over it and zooms in slightly. It will then provide details about that game such as its gamemodes how long it's current duration and the amount of players in it.

Pressing the right button at this screen will slide out a menu from the right which the player can then use to toggle on and off filters to find specific game modes. In the middle of the screen there is an empty pillar that the player can select to start a new game, showing a new game setup menu.
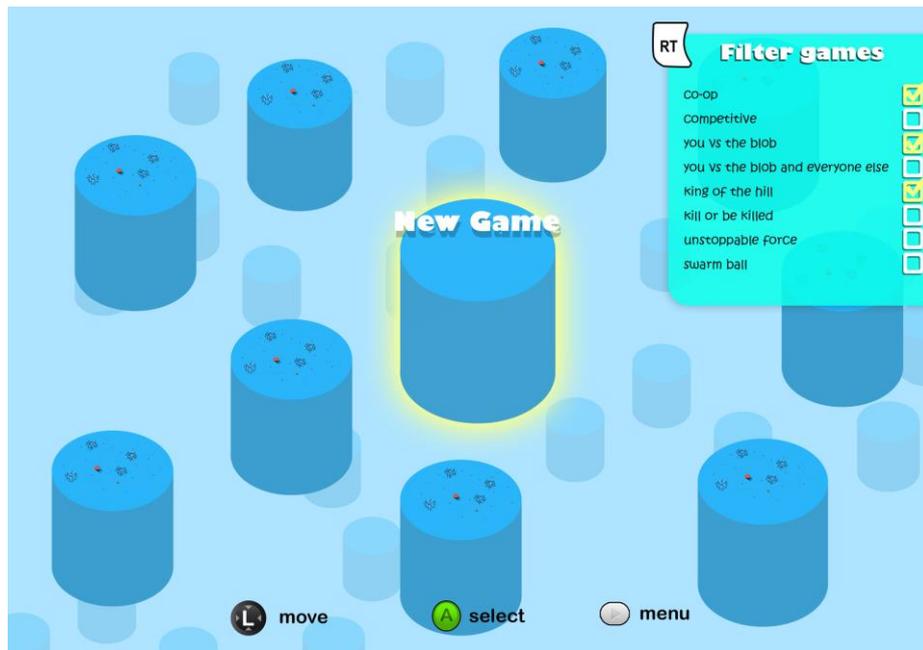
New game setup menu

The new game setup menu appears when the player selects the blank pillar. It allows the pillar to define the game's settings this includes:

- the game mode
- local co-op, online or singleplayer
- if co-op or singleplayer whether AI players should be used if less than four players
- whether the game is public or private
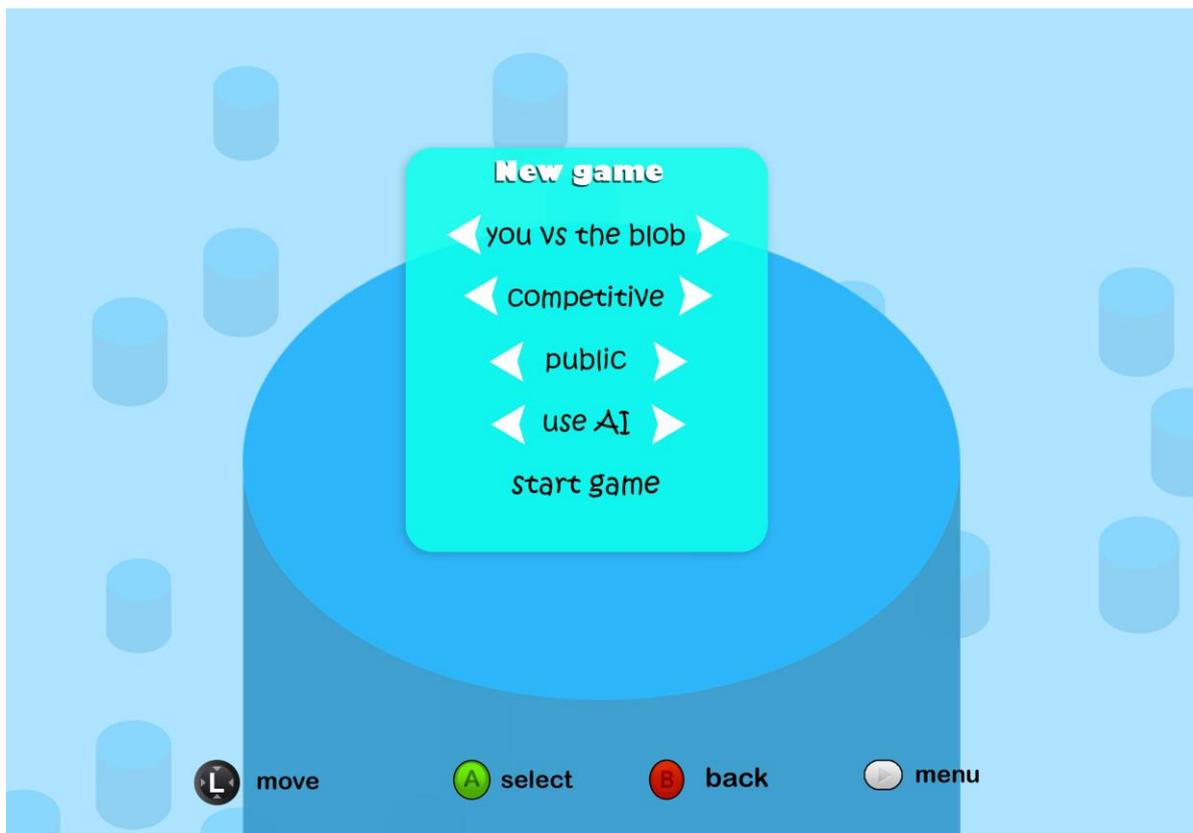
Pause menu

The pause menu can be accessed in the game selection menu (main menu) and during gameplay by pressing the start button. This menu allows the user to return to the main menu (or quit the game if used at the main menu) as well as change audio settings.
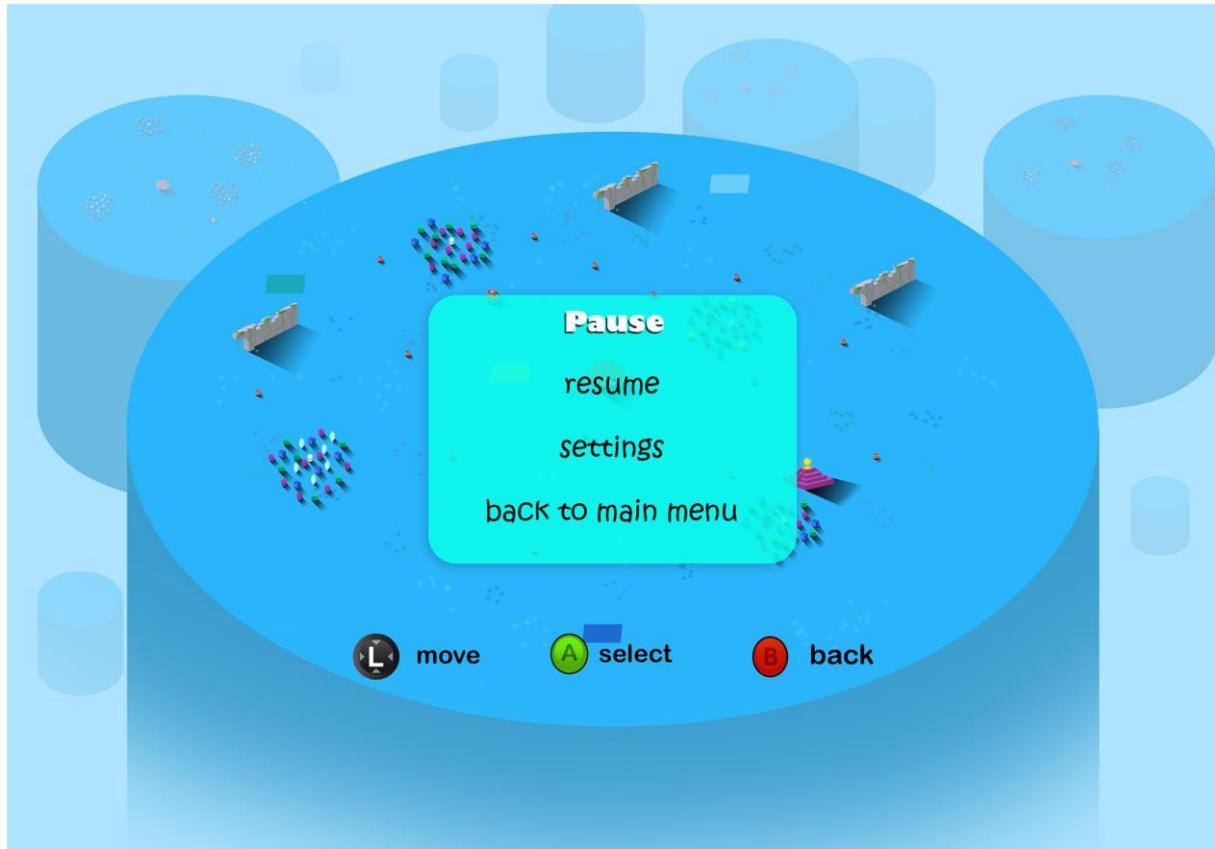
UI Elements

Ritual charge

When the player uses their ritual they have to charge it to increase its radius. A bar will show up at the bottom of their screen which indicates how charged the ritual is so they know when it has reached its maximum charge.

xp bar

The player has the ability to level up in the game to increase their swarm size. So that the players know how much more xp they need to level up, there will be a bar that fades in at the top every time the player collects xp.

Mini Map

The mini map shows every player's' location on the map. When players increase their swarm size, their swarm on the minimap will pulse and grow. The minimap is located in the top right corner of the screen when online and in the centre if it's split screen.

Art

Art style/direction

Shape swarm has a minimalist art style which uses simple shapes for players and NPCs. We wanted the game to appear bright and colourful so that it is eye catching and appealing to a wide audience. The player and their units are very simple shapes and show little character, this is so players can project themselves onto the character and make up their own story. The enemies however have been given eyes to personify them and better differentiate them from the players.

GUI

Both the xp bar and the ritual charge bar fade in and out when needed.
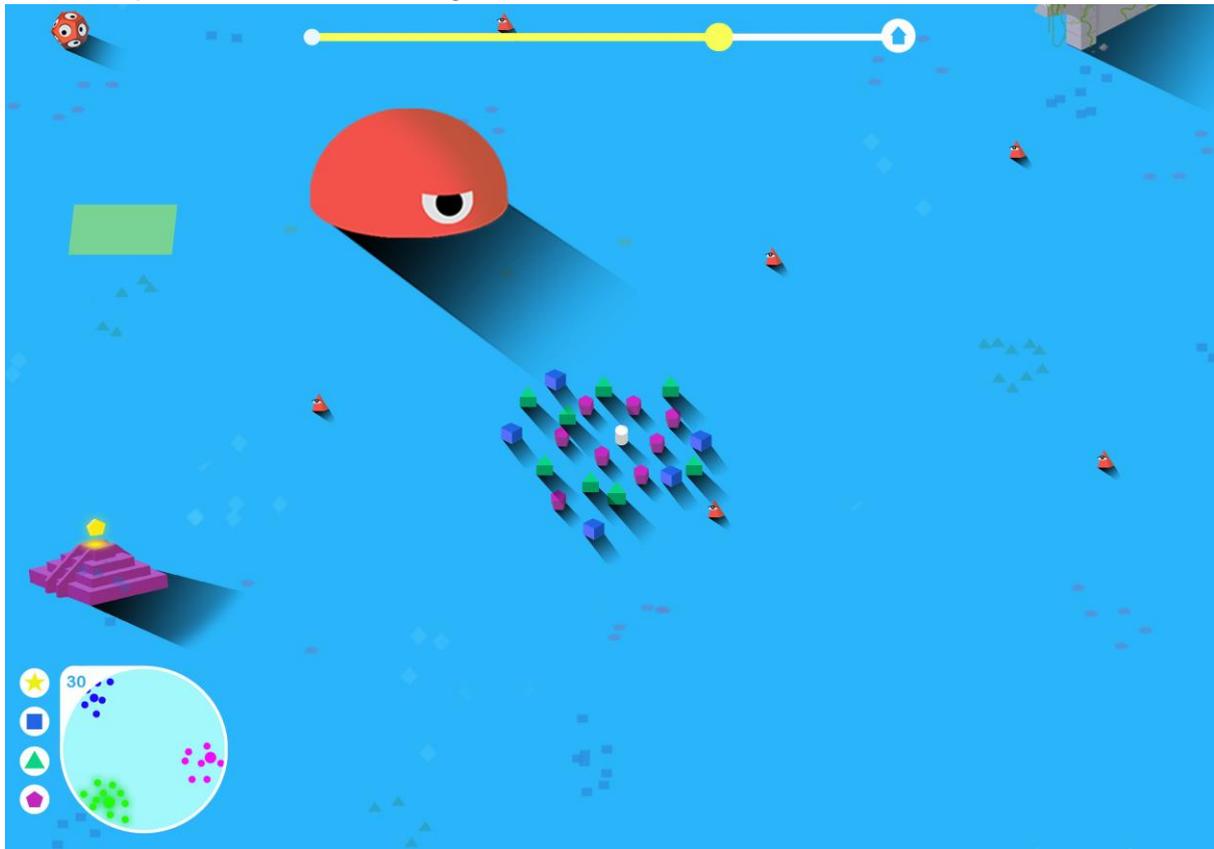
2D Art/animation

Camera

If two or more swarms collide with a large amount of units the camera will shake on impact. This should make it feel that there is a lot of power in the collision. Also as the players swarm increases in size the camera zooms out.

The player

The player slightly tilts in the direction it is moving. If the player switches direction quickly a small dust cloud appears at the base indicating fast movement. When the player dies the everything on the screen darkens except the player, who starts to crack. Light will radiate from these cracks and eventually the player explodes.
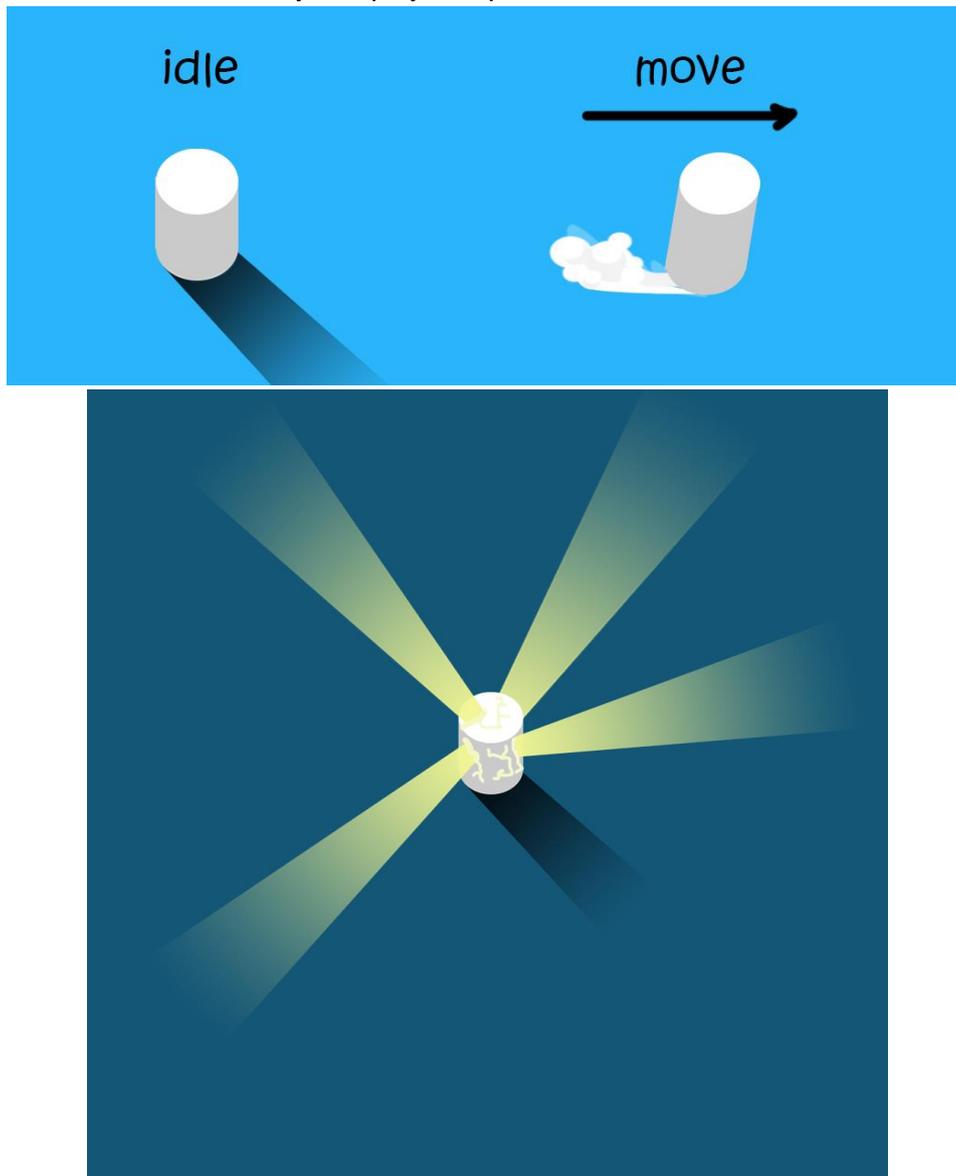

The boss (blob)
The boss moves about like a blob, shifting its weight to move about. We will be changing how the boss looks as it takes damage, it will gradually look more beaten up allowing the player that they are making progress when fighting it. When the game starts the boss drops into the middle of the map, slamming the ground and pushing players back from their starting position. It also has a death animation similar to the player except that it explodes into blobs/chunks.
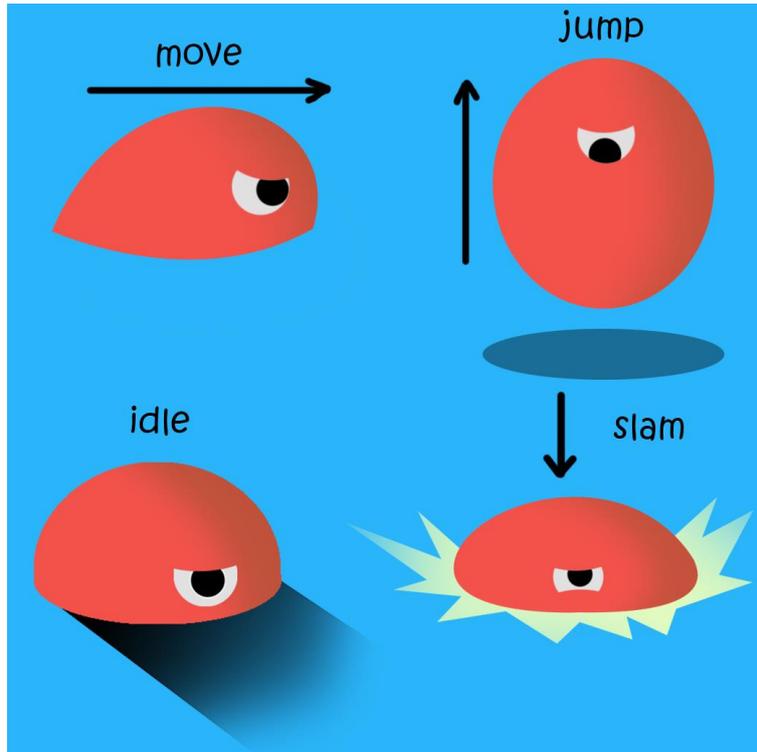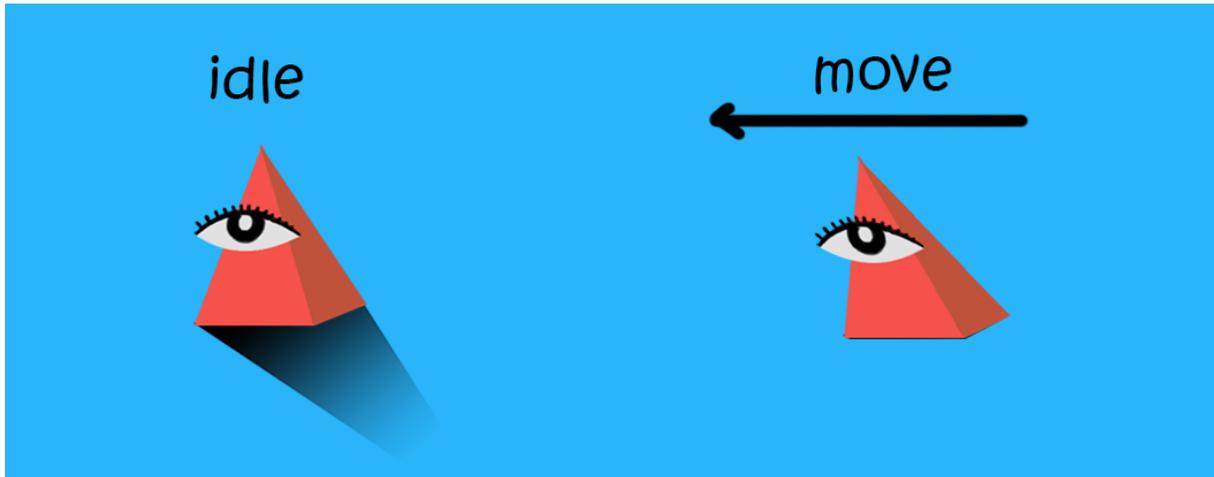
The Dododron

The Dododron rolls about like a dice on the map and has eyes on each face that look around and blink. In combat the eyes will give different a expression when it is about to attack.
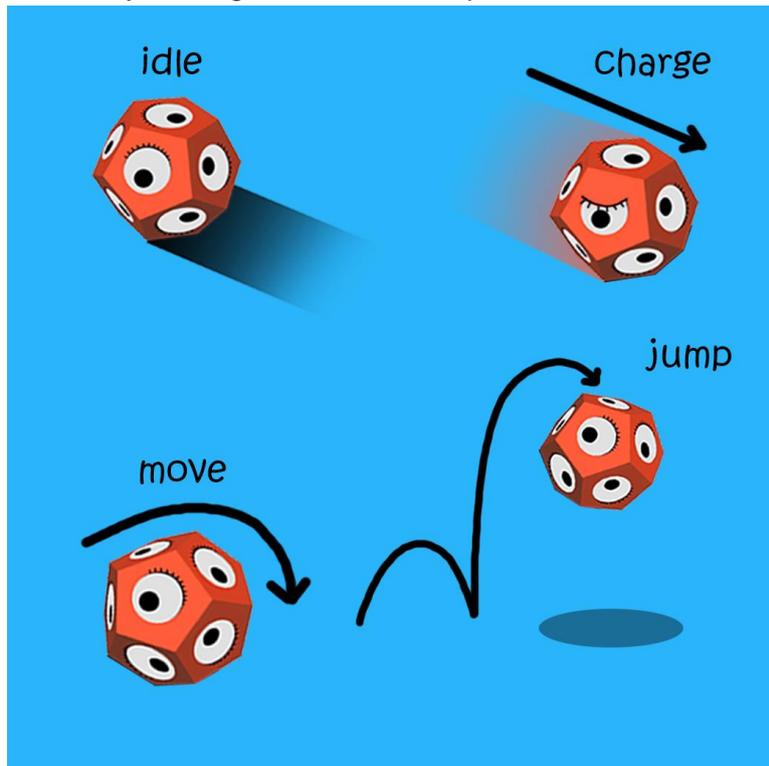
The soldier

The soldier tilts in a direction (like the player) when moving and occasionally blinks.

The temple
The temples rise out of the ground layer by layer and then have their ritual shape spinning on the top. After the ritual has been collected the temple fades to grey and crumbles in on itself.

The units
The units slide up from the ground when summoned by the player, other than this the only animation they have would be the spinning animation for the star unit.

Background/Environment

The Map
The Map is a cylinder/cylinder equivalent of a shape, i.e. a tall square or star shaped pillar. On one side of the level you can see the pillar that supports the level, and on the other side you can see a landscape of pillars, all with multiplayer matches happening on them (can be faked by having random battles occur on them, or even have replays of battles from other players play out); the level could be upside down or sidewards, but this would have little effect on the game. In the same way that the units and temples raise up from the ground like a piston, the levels themselves are all raised up from a larger plane, giving the players a sense of scale.
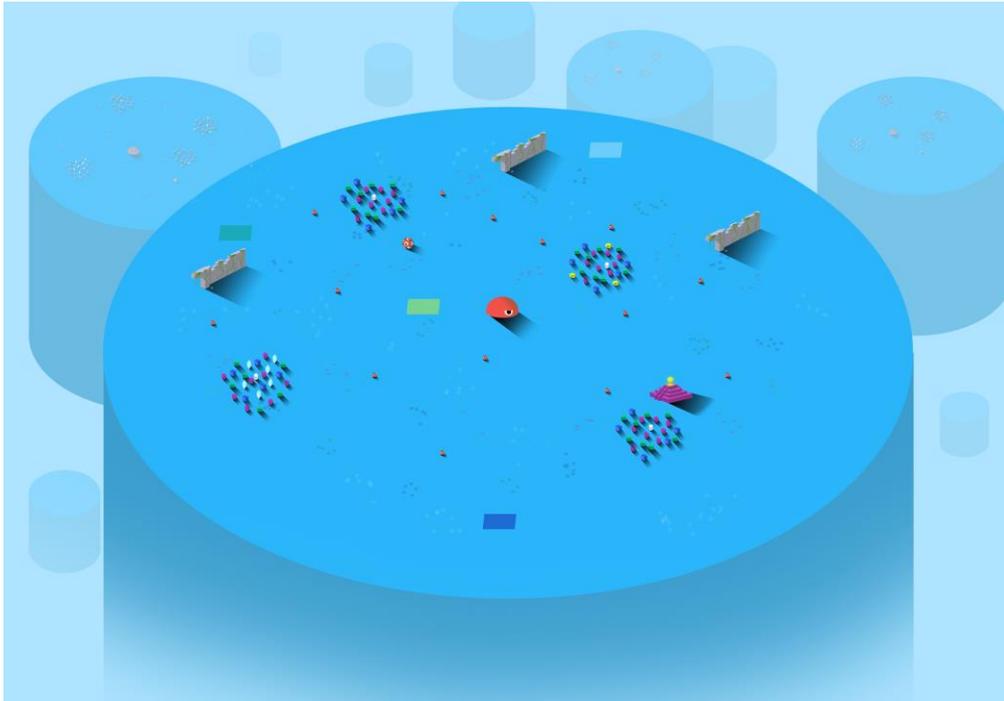
The temple

The temples use the same colour as the rituals unit colour that can be collected from it, e.g. purple temple gives the player the purple pentagon units. They initially appear as large flat squares on the ground, they then rise up into temples when activated. Once the temples ritual has been collected the temple fades to grey and crumbles in making it look like the ruined walls.
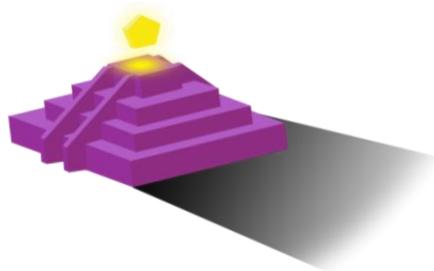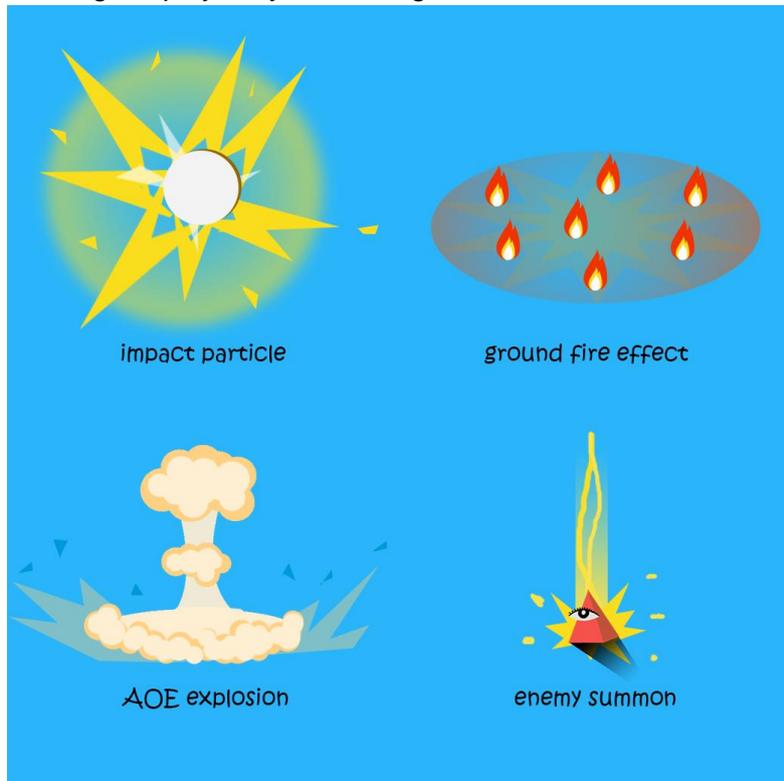

The ruins

The ruins are broken walls covered with vines. These form large barricades that span across the map.
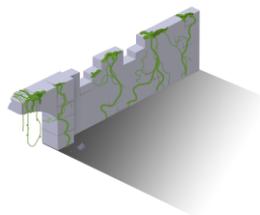
Particle effects

The following are some of the particle effects we are considering for the project. We plan to have a very large amount of them rendered on the screen at a time, similar to the game Resogun, to make the gameplay very interesting to watch.

Asset Pipeline

- Assets
  - textures
    - UI
      - mini map
      - HUD
    - sprite sheets
      - boss
      - player
      - dododron
      - soldier
      - units
    - particle effects
    - environment
      - temple
      - ruins
      - map
  - sound
    - music
    - sound effects

Sound FX and Music

Game Background Music
1. Non-combat: A more active version of the main menu music, but get's more eery when nearing the ruins, and more triumphant when nearing the temples; similar to the Dustforce soundtrack by Lifeformed
2. Basic Combat: Very intense fast paced music, somewhat epic when large swarms enter battle
3. Boss Combat: Like the combat music but much more intense

Main Menu Music
- Calming, ambient, echo-y, like on top of a mountain and hearing the wind

Impact sound effects
- Slam attack, large impact sound emphasizing the shaking of the ground
- Square impact, blast sound
- Diamond impact, glass like shatter
- Triangle sound, sound like elastic snapping
- Star spin, whirling sound effect
- Temple crumbling, sound of crumbling bricks when the temples collapse
- Dash sound, a whoosh of wind
- standard impact sound, impact sounding almost like a smack
- charging sound for boss abilities

Menu sound effects
- blip like sound effect when moving over menu items
- more noticeable blip when items are selected

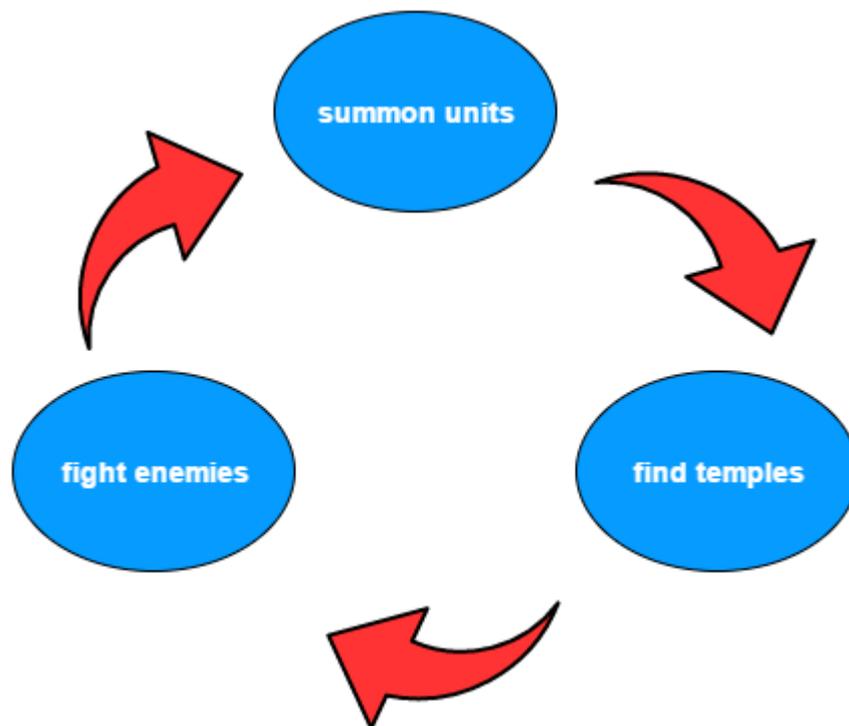# Technical Specifications

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Platform/OS

- Sold on the Xbox Live Marketplace on the Xbox One.

● PSN on the Playstation 4.

Max Players

● There will be a maximum of four players in a game, for performance reasons (we are unsure on just how intensive the AI and collisions will be)
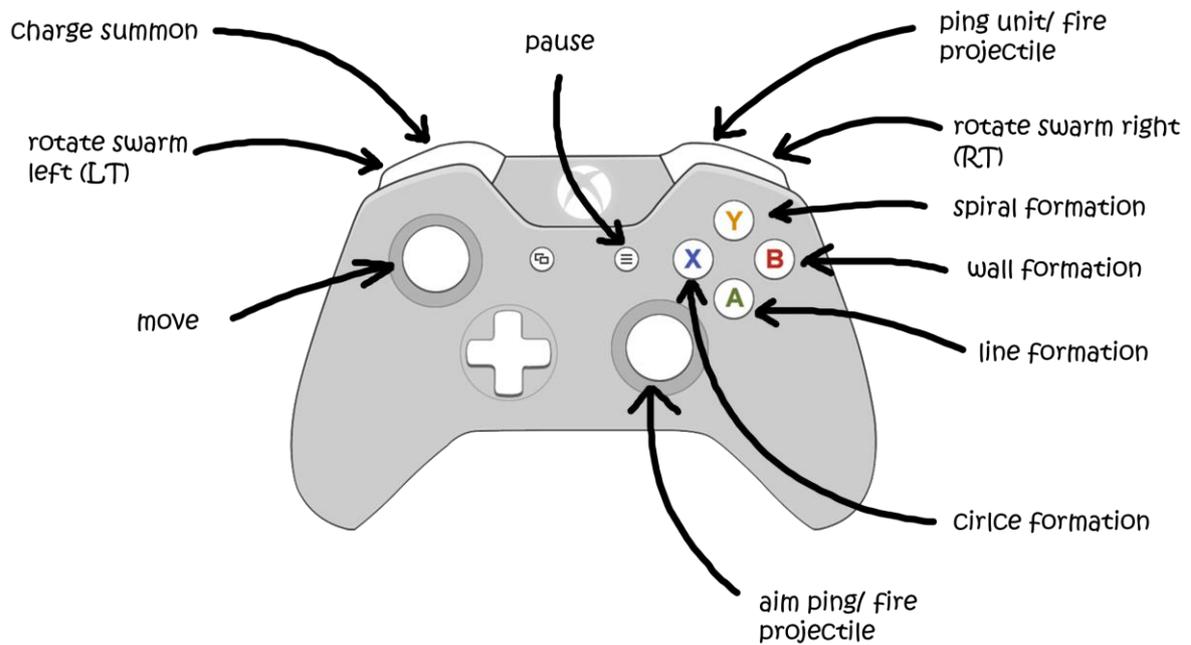
Core Game Loop

Control scheme

Game controls
● Left analog stick for moving
● Right stick and right bumper to aim a unit and let go to shoot it (ping ability).
● Left bumper to charge summoning ability, also used to activate temple sites.
● X, Δ, O, □/A, Y, B, X for formation controls
    ○ A/X: Line formation
    ○ X/□: circle formation
    ○ B/O: wall formation
    ○ Y/Δ: Spiral formation
● Right and left trigger to control swarm orbit rotation direction (swarm does not rotate otherwise).
● When there are no units in the swarm the right bumper becomes the player's basic attack which can be aimed with the right stick.

Menu controls

- Holding right trigger opens a filter menu that allows players to filter through different fields of game modes.
- Left stick is used to navigate the menu and move around the game selection screen.
- A/X to select.
- start button to open settings and quit menu.

charge summon

pause

ping unit/ fire projectile

rotate swarm left (LT)

rotate swarm right (RT)

spiral formation

wall formation

move

line formation

cirlce formation

aim ping/ fire projectile

Monetisation and Marketing

Monetisation

Shape Swarm will primarily be monetised by distributing the game on both PSN and the Xbox Marketplace; this will be a Pay to Play title. We do however plan on adding additional content that can be bought as DLC.

Texture packs

Shape Swarm primarily uses 2D sprite sheets as art assets for the game; by using Unity's asset bundling system we may be able to make themed texture packs that change how the units and enemies appear. For example we may have a medieval themed texture pack, where the boss is replaced with a dragon and the units are made to look like knights.

Not only will this allow us to squeeze a bit of extra profit out of the project it will mean that we may be able to widen our target demographic as not everyone will find the minimalist style appealing. Also during projects once the artists have produced the initial assets they tend to have very little to do for the rest of the project. So by creating texture packs it will keep them productive and will allow us to release DLC relatively quickly after release.

Expansions
There is the possibility to produce expansion packs that add extra content to the game. We would be able to add enemies, units and possibly different game modes. This would however take extra development time and may lead to splitting up the player base as some players may have the DLC whilst others don't.

Marketing

Shape Swarm will have very visual gameplay and mechanics that are fairly easy to understand by seeing them in action. To get the game publicity we could create short gameplay clips (in the form of GIFs of video clips) and send them around social networking sites.
The popular indie game FEZ used the same approach and most people attribute its marketing success to the fact that it was a game where the mechanics didn't need much explaining.

If this strategy does not work however, we can follow more traditional marketing techniques. For example we could distribute review copies of the games to industry journalists.