

Brogguts

Overview

This will be an iPad exclusive game. “Brogguts” is a game based on collecting space trash. While controlling a ship on the screen (birds eye view), the player can either choose to work on building up their own space station and personal pilot profile or play missions/challenges on pre-made levels against computer opponents. Also, a skirmish battle is an isolated incident of a mission that only provides brogguts, no other progression. The main goal is to blend the addictiveness of simple A/JRPG concepts with the somewhat complicated concepts of an RTS. This should ensure a large re-playability value.

Gameplay Modes:

1. “Base Camp” - This is the pure RPG option of the game, where simply collecting brogguts and improving your persistent base station is the main goal. Simple obstacles like the lack of abundant collectables and possibly broggut “pirates” will exist protecting rich broggut coagulations.
2. “Challenges/Missions” - Missions or challenges will be selected from within the “Base Camp” mode. These missions and/or challenges will consist of a predetermined enemy base (or just squad/fleet) being created and providing a strategic incentive for the player to either defend or attack against the enemy. If successful, the player is rewarded with more brogguts, XP, and possibly more unlocked missions.
3. “Skirmish” (Secondary feature) - A pure RTS battle. An isolated fight between two space stations that start with the same amount of built tech. If against a computer, the player will be able to use any upgrades/tech they have unlocked in their “Base Camp,” but will need to build a new temporary fleet to defend/attack the opponent. All left over brogguts will be added to “Base Camp” total, and winning the skirmish will provide an additional bonus.

Core Implementation

These are features that are required to be in the final product, since the foundation of gameplay relies heavily on their inclusion.

- Input Control System - A controller that monitors input and passes appropriate input signals to the objects and other controllers that are subscribed to the corresponding input. The two big distinctions are going to be between GUI interaction (menus, buttons, scrolling, etc.) and game control (moving a ship, commanding a friendly ship, selecting a squad, etc.). “Squad” management is controlled through this controller.
- Persistent Pilot Profile Manager - A controller that keeps track, stores, and makes available to other controllers the details of the player’s progress. Keeps track of all brogguts collected (and spent) in any game mode. Unlocks and upgrades are stored in this controller, along with

any information about the profile that will be saved between app exits. A player's XP will also need to be tracked in this, their "Space Year": which will allow players to unlock ships and upgrades for "Base Camp" and skirmishes.

- **Game Scene Manager** - This will track all objects that need to be drawn or interact with each other in effective ways. It will control what state the application should be in at every moment. If there is a large change of scene, such as going from a menu to a loading screen for the gameplay, this controller will manage all external changes needed for the apps smooth appearance. There will always be one scene present at one time, and changing between them may be seamless or not, depending on the scenes. Pausing/resuming will be done through this manager.
- **Broggut Control System** - This will be in charge of generating new brogguts for each mission, "Base Camp," and skirmish level. Brogguts aren't generated in real time, they will be pre-loaded as much as possible. Brogguts will be treated similar to particles, since they will be controlled by this single entity, and will be streamlined into the game loop. Any objects that need to interact with them will go through this controller, and all other objects aren't of concern. Broggut invariants are listed below.
- **Physics/Collision Controller** - This system will be in charge of updating all game entities' (except brogguts) logic and location. This controller should be self-sustained, so once implemented, barring any invariant changes, it won't need to be changed. Brute force collision detection is the last resort to detect object overlap, so more efficient processes are worth looking up. Broggut collision detection will be specific to each object, and only checked with nearby brogguts.
- **Drawing Controller** - This controller is in charge of actually putting together the image that will be rendered on the screen. Using primarily OpenGL, the textures and sprites will be drawn as often (and as smoothly) as possible. Some GUI may use the built in UIKit framework, in which case the controller will need to be switched to UIKit mode and out of OpenGL, and vice versa. This controller is also in charge of generating dynamic images for brogguts (in part with the B.C.S.) and the background of space (stars, planets, etc.). All of this is done at loading time and not in realtime.
- **Friendly Artificial Intelligence System** - This controller is mostly in charge of path finding for friendly units, but also needs to handle any reactions units might have to things that happen outside of the players direct influence. Automatically attacking enemies that approach, mining the closest medium or large broggut when the old one is depleted, squad arrangements, and more needs to be controlled and managed.
- **Audio Controller** - This controller can be called by any other to request sounds to be played. It should always be running, in every scene.

Secondary Implementations

These are features that may not make it into the final release of the application, but would greatly improve the value of it as a game.

- **Multiplayer Controller** - Allow skirmish battles over bluetooth/WiFi (via GameCenter) between two human players on two separate iPads. It will work similarly to how the A.I.

skirmishes work, were you start off with an even amount of unit power, but you will be able to use your own tech levels you've upgraded in "Base Camp." This presents the problem of experienced players destroying new players with expensive tech. To solve this, players with significantly different "Space Years" of experience will not be allowed to play each other. The reward will be higher for a player to beat another player with a slightly higher Space Year rating, and vice versa. Maps will always be mirrored over the y-axis so that players can play from the same perspective against each other.

- Extensive Upgrades/Unlocks - Few upgrades, and therefore unlockables will make it into the final product fully balanced, so to make both the RPG and RTS sides of the game more interesting, more complexity must come with more time spent playing. The more upgrades and more unlockable things in the game, the better, but they must remain balanced as to provide fun in player vs. player skirmishes.
- Achievement System - Work with GameCenter and provide many achievements that the player can get by playing the game.

Game Elements

These are specific elements that define the objects and classes that they will inherit from. It is important to remember that everything happens in the XY two dimensional plane.

1. "Brogguts" - Essentially space trash, mostly made up of metal scraps that humans have tossed out into space (the largest "trash can" ever discovered). Now that that earth and most surrounding planets have been mined fully of their useful resources, all of that trash we've been throwing away has surprisingly become the most useful (and plentiful) resource. So much so that it's become a universal currency used throughout space stations. Also, recent technology has provided a way to easily refine brogguts into a metal (Broganium?) used into the creation of most structures and crafts of the age. The player's main goal throughout the game will be to collect— nay, amass as many brogguts as they can. Not only will it be cleaning up space, but it will make them rich! Technically speaking, there are a few rules about how brogguts behave in space:
 1. Broggut Types - There are three sizes of brogguts found in space: small, medium, and large. There are also three value types of brogguts: young, old, ancient. Any size can be of any value type. Young brogguts are worth the least, ancient the most. Ancient brogguts should be very rare and not seen until the player has gotten into the game. Small brogguts are the only kind that move. Small and medium brogguts can both rotate, while medium brogguts rotate without moving. Large brogguts remain still and do not rotate.
 2. Broggut Collisions - The previous invariant ensures that (except possibly upon generation) the only collisions that occur between brogguts are small brogguts and other smalls, mediums, and larges. Other collisions are impossible. Small brogguts colliding with other brogguts will result in a small bounce, momentum will be conserved. Small brogguts will be affected by the thrust given off by nearby ships.
 3. Broggut Value - A broggut's value is decided on generation, based on the size and the "age" of the broggut. Young small are worth the least (and are most common), large ancient are worth the most (and are most rare). A large broggut's value will be divided up

into it's two by two gridded edge pieces fairly evenly. When one piece is mined fully, it will disappear and open up to new mining. Tunnels/etc. can be created with this. A two by two grid that is no longer connected to a large broggut becomes a medium broggut and starts rotating.

4. **Broggut Creation** - Space brogguts are only created when the level is started, and when a craft or structure is destroyed. If a craft or structure is destroyed, the brogguts created have the %50 the value of the craft/structure destroyed, and will always be young.
5. **Mining Brogguts** - Small brogguts are mined simply by manually flying a ship over them. A.I. controlled mining ships aren't able to mine these (upgradeable?), they must either mine medium or large brogguts. Medium brogguts are mined by orbiting the broggut at the same speed and spending a predetermined amount of time collecting brogguts (upgradeable?). Large brogguts are mined by miners stopping close, choosing a specific two by two grid on the edge, and taking time to mine stationary. The amount mined at one time is determined by the ship's cargo bay size (upgradeable?) and then that much will be subtracted from the broggut's value, if medium. If large, the two by two grid that is being mined will have it's value subtracted.
6. **Broggut Proximity** - A medium broggut must not be close to another medium or large broggut so that a miner can't orbit it safely and mine. The rotation speed of a medium broggut should be low enough so the mining distance isn't too large.
2. **"Space Craft"** - The most common pieces of mobile space technology seen in space today. Used for space warfare, mining, and transportation, these craft have been standardized down to the last screw. Primarily, these ships can be broken down into two groups: Standard and Advanced.
 1. **"Standard Craft"** - These craft are what you'd see most commonly out in space doing what they were made for. They are the cheapest, since their designs are so commonly used, and manufacturers don't have to worry about custom adjustments. They are also all named after insects.
 1. **"The Ant"** - This is the most common and arguably the most useful craft in the game. The Miner is primarily how you will collect your brogguts and get so rich. Starts unlocked in Base Camp.
 1. Cost: 1 / 6
 2. Engines: 4 / 6 – When full cargo: (2 / 6)
 3. Weapons: 1 / 6
 4. Hull: 3 / 6
 5. Ability: Can collect brogguts into its cargo bay using a tractor beam specific to this craft's design. (Upgrade Only) Cargo space will be increased by %50, mining speed is increased by %25.
 2. **"The Moth"** - This is the racing craft that speed demons prefer if they can't afford anything better. Unfortunately it won't last too long in a fight against anything with strong weapons, but it is cheap and fast. Starts unlocked in Base Camp.

1. Cost: 1 / 6
 2. Engines: 5 / 6
 3. Weapons: 1 / 6
 4. Hull: 2 / 6
 5. Ability: (Upgrade only) Can evade %50 of enemy attacks for a few seconds.
3. "The Beetle" - This is a strong and reliable craft that won't get you very far in any short amount of time, but again it is fairly cheap and not the easiest boat to destroy. Starts unlocked in Base Camp.
 1. Cost: 2 / 6
 2. Engines: 2 / 6
 3. Weapons: 3 / 6
 4. Hull: 3 / 6
 5. Ability: (Upgrade only) Will slowly and passively repair its hull on its own.
4. "The Monarch" - This is an interesting craft since it doesn't provide any sort of defensive weapon, but it provides a high speed connection between up to four other ships. This enables the ships to behave as a squad together and be commanded as one entity instead of separate craft. Must unlock in Base Camp.
 1. Cost: 3 / 6
 2. Engines: 3 / 6
 3. Weapons: 0 / 6
 4. Hull: 3 / 6
 5. Ability: Allows four other craft to join it in a squad. (Upgrade only) All other craft in its squad get weapon or hull bonus.
2. "Advanced Craft" - These craft aren't seen as often, and all must be unlocked by advancing space years in Base Camp. All of these craft will need to be tested at every level since once introduced in a game, they shouldn't render the standard ships useless. Also, they are named after more powerful animals.
 1. "The Camel" - This is a more advanced version of the ant, still a mining ship, but with more protection, speed, and cargo space. Also very difficult to kill. Must unlock in Base Camp.
 1. Cost: 4 / 6
 2. Engines: 3 / 6
 3. Weapons: 2 / 6
 4. Hull: 6 / 6

5. Ability: Can collect brogguts into its cargo bay using a tractor beam specific to this craft's design. (Upgrade Only) Can quickly turn a two by two block of a large broggut into small brogguts, like tunneling.
2. "The Rat" - This craft is specially designed ship made entirely for stealth operations, and since the computer systems of this ship are extremely advanced and top secret, it cannot join squads led by monarchs. Its cloaking ability comes very much in handy to scout out an opponent, or monitor parts of space secretly. It may not use it's weapons when it is cloaked. Must be unlocked in Base Camp.
 1. Cost: 5 / 6
 2. Engines: 5 / 6
 3. Weapons: 3 / 6
 4. Hull: 2 / 6
 5. Ability: Can cloak indefinitely, but forfeits the ability to use its weapons while cloaked. (Upgrade Only) EMP Burst, which disables any ships/structures in it's radius for a small amount of time. Also de-cloaks the rat if cloaked.
3. "The Spider/Octopus" - This craft is very useful offensively and defensively. Its shape gave it the name, eight ports that each holds a small drone that will be jettisoned if in battle. The spider has no weapons for itself, but each drone has .5 / 6 weapon power. Must unlock in Base Camp.
 1. Cost: 6 / 6
 2. Engines: 1 / 6 -- Upgraded: (3 / 6)
 3. Weapons: 0 / 6 -- Drones: (4 / 6)
 4. Hull: 5 / 6
 5. Ability: Has eight drones fighting for it, each drone draws enemy fire from the ship itself. (Upgrade Only) Increase movement speed.
4. "The Eagle" - The Eagle is the most desired craft on the market, since it provides the all around best performance for a single pilot. Getting this ship is any single pilots dream, and once purchased, other ships are left in the dust by this masterpiece of engineering. Must unlock in Base Camp.
 1. Cost: 6 / 6
 2. Engines: 6 / 6
 3. Weapons: 5 / 6
 4. Hull: 4 / 6
 5. Ability: When destroyed, the eagle explodes into not just broggut pieces, but creates a shockwave that damages all other craft and structures in its radius (Upgrade Only) The shockwave only damages the enemies units.

3. “Space Structures” - The most common pieces of immobile space tech today. Structures are kept in storage at the closest home station and when requested are brought out via transport drones; the longer the build time, the longer it will take to move the structure to its desired location. Structures aren’t active if they are in “build motion.” There are only a few useful structures that are common to miners and warfare practitioners today and here they are:
 1. “The Block” - This is the most simple type of structure that can be built. Made by compressing brogguts into very dense alloys, this is really just a strong block (two by two) that can be used as a strategic device, or purely for atheistic organization. This is available at the beginning of the game.
 1. Cost: 1 / 6 (Only brogguts)
 2. Build Time: 2 / 6
 3. Hull: 6 / 6
 4. Ability: No ability except for its inherent strength.
 2. “The Refinery” - This is a very important structure, since it provides the secondary currency of the game: Metal. Refineries are sort of strange buildings since they can only be built onto the existing home station. When selected to build, the player won’t choose a location, one of the designated “station spots” will be filled with one. Each station only has five “station spots”. This must be unlocked in BaseCamp (very first unlock).
 1. Cost: 3 / 6 (Only brogguts)
 2. Build Time: 2 / 6
 3. Hull: 4 / 6
 4. Ability: Converts brogguts into metal, which is used to build everything. (Upgrade Only) Refines brogguts 25% faster.
 3. “Craft Upgrades” - This provides unlocked upgrades for unlocked craft. This structure is similar to the refinery, where it is built in a designated “station spot.” This must be unlocked in BaseCamp.
 1. Cost: 4 / 6 (Only brogguts)
 2. Build Time: 2 / 6
 3. Hull: 4 / 6
 4. Ability: Allows the player to purchase upgrades to craft that they have unlocked using brogguts.
 4. “Structure Upgrades” - This provides unlocked upgrades for unlocked structures. This structure is similar to the refinery, where it is built in a designated “station spot.” This must be unlocked in BaseCamp.
 1. Cost: 4 / 6 (Only brogguts)
 2. Build Time: 2 / 6
 3. Hull: 4 / 6

4. Ability: Allows the player to purchase upgrades to structures that they have unlocked using brogguts.
 5. "The Turret" - This is an important defense structure that provides your station with reliable defense through out the entire game. This is available at the beginning of the game.
 1. Cost: 3 / 6
 2. Build Time: 3 / 6
 3. Hull: 3 / 6
 4. Ability: Will automatically shoot tracking missiles at nearby enemy ships. (Upgrade Only) Is able to target two ships at once instead of just one.
 6. "The Radar" - This is a very powerful structure if used in the correct manner. Radar can seem useless but knowing what your enemy, or even just where the richest brogguts are can sued the game in the players favor. Must unlock in Base Camp.
 1. Cost: 3 / 6
 2. Build Time: 4 / 6
 3. Hull: 4 / 6
 4. Ability: Reveals a circle of the level around it. (Upgrade Only) Increase its radar radius by %50.
 7. "The Fixer" - This is also an incredibly helpful structure since friendly ships nearby will get repaired slowly. Ironically though, this structure is very weak itself and can easily be taken out by an enemy squad. Must unlock in Base Camp.
 1. Cost: 4 / 6
 2. Build Time: 3 / 6
 3. Hull: 2 / 6
 4. Ability: Will slowly repair the closest friendly ship in need of repair. (Upgrade Only) Will repair two ships at once instead of just one.
 4. "Character/Pilot Profile" - This is the persistent data and information that will matter to the player and how it affects the game.
 1. "Space Years" - This is a value that represents progress in the Base Camp mode. It can be compared to XP or experience in more obvious RPG games. At certain levels of space years, you will unlock certain craft, structures, and upgrades for use in either Base Camp or skirmish mode. Also, if multiplayer is implemented, only players with similar space years will be partnered up automatically, unless they create a private match.
 2. "Brogguts" - Simply the numbers of net number of brogguts that have been collected in either Base Camp or skirmishes. These can be spent on upgrades, ships, and structures in Base Camp mode.

3. "Mission Level" - The mission that the player is currently on.
5. "Interface/Ship Control" - This is how controlling the game half as a space shooter and half as an RTS will happen. Keep in mind that this will be played only on an iPad.
 1. "Ship Piloting" - Touching and holding with one finger anywhere in space (that's not another unit) will bring the piloted ship towards that position. The ship should always lie near an edge of the screen, and that edge should be facing the back of the ship. If you want to decelerate, all you have to do is put down two fingers instead of it. I.E. If I am touching the right side of the screen in space with one finger, the ship should move to the right, and the view should scroll with the ship, putting it near the left side of the screen. If the ship is on the left and I touch on the left in space, then the view should scroll to put the ship on the right, now moving to the left. The same is true with up and down.
 2. "Attacking" - It is important that combat is simple, since it is not the main focus of the game. If the current piloted ship has weapons, it will automatically attack an enemy that comes within its attack range. All attacks will hit, none will miss. Weapons should probably all be some sort of instant attack (laser or fast missile) so that bullet projection doesn't need to be factored in. Attacking will not happen automatically if the piloted ship is currently activating an ability or mining.
 3. "Mining" - Since collecting brogguts is such a large part of the game, it should be either easy, or you're sending someone else to do it. Collecting brogguts on your own must be done in an Ant or a Camel, and must be collected either by flying directly over small brogguts, or mining from a medium or large broggut. Mining is possible when piloting, but probably not desirable, when the A.I. could do it on its own. When you mine you must return any collected brogguts to your home station by flying near/over it.
 4. "Transferring Ships" - Due to the progression of technology, your body isn't actually physical in the ship when you're in control of it. You are safe inside of your home station and control your ship remotely. If you want to control a different friendly ship, all you have to do is tap and hold on your current ship, and move your finger over the ship you want to pilot, then let go. Depending on the ship it may take a few seconds, with more advanced ships taking more time. If you're currently piloted ship dies, you will automatically be transferred to the closest other friendly ship. If there are none, you will be brought to the home station where you must build another.
 5. "Activating Abilities" - To use an ability, you must tap on your ship, and drag away from your ship in any direction. If the ability doesn't need a target, it will be activated when you release your finger. I.E. The Camel can quickly turn an edge of a large broggut into a cluster of small brogguts, which is done by first tapping and holding on the piloted camel, and then moving and releasing on the two by two square you want tunneled through. This is the same touch/motion as transferring ships, so activated abilities are unable to target friendly ships.
 6. "Commanding Ships" - Other ships that are not in your control (are not your piloted ship) can be commanded by tapping on the ship, holding, and dragging either to a location, enemy, or medium or large broggut, then letting go to send the command. If the object

released on was an enemy, the ship will pilot itself close to the enemy and engage in battle. If the released object was a location, the ship will just move and sit there. If the object was a broggut, as long as the commanded ship was a mining vessel (Ant or Camel), it will start mining brogguts from it, automatically returning them to the home station and returning. If the released object was a monarch, the ship will join the squad. If the released object was another craft (not a monarch) then the commanded ship r

7. “Making Squads of Ships” - This is an important task. If you control a monarch, you are able to include up to four other ships within that monarch’s squad. To add any ship to the squad, just tap and hold on the ship, then drag to the monarch you want leading the ship, and let go. The ship will move to the monarch and join its squad as soon as it reaches the monarch. Squads behave just like as if they were their own ship. If you tap on the squad and drag as if you issuing a command, the whole squad will do as commanded. To remove a ship from a squad, tap and hold for two seconds on the ship you want to remove, then command it anywhere else but in the squad. Squads appear as one unit on the space map.
8. “Building Ships/Structures” - The screen is divided into two important sections. The main section on the right is the view of the ships, structures, and space. This is essentially the gameplay side of the screen. It is square shaped (or at least a large majority of the screen, could be a landscape rectangle) and touches and control previously mentioned are all contained within this region. On the left, there is a “collapsible” side bar that contains global controls and access to your home stations abilities. Building craft and structures, and buying upgrades are all done in this sidebar. The four main options in this sidebar are “Refine Brogguts”, “Order Craft”, “Build Structure”, “Purchase Upgrades.” The first of which pushes a new sidebar into view (replacing old one) with details about how many brogguts you currently have be refined into metal. The second pushes a new sidebar with options for craft for purchase (this is a vertically scrolling sidebar, locked craft are grayed out). The third is similar to the craft sidebar except it contains structures. The fourth is similar to the previous sidebars except it contains upgrades for ships and structures. All of these sub-sidebars have back buttons that will pop that sidebar and return to the original. Also, tapping on the buildings the structure spots, the refineries and upgrade stations will bring up the corresponding sidebar. Double tapping the screen in the main box will dismiss (toggle?) the current sidebar.
6. “Space Map” - The map that will show all that you have currently explored, and give a simple overview of all of your current craft and structures. Although helpful, while in this mode, your current piloted ship will be venerable to attack. It will be possible to command multiple ships from the map at once. Moving back and forth between the space map and direct control of the field is common, so it must be easy. Either a three or five finger pinch/expand should toggle the map. It is also accessible through the sidebar via a “Space Map” button.
 1. “Ships” - Ships will appear as little symbols reflecting their craft type circled by green if they are friendly, and red if they are enemies.
 2. “Structures” - Structures will appear as symbols reflecting their structure, surrounded by a square (contrasting to a circle). Green if friendly, red if enemy.

3. "Brogguts" - Small brogguts will not be shown on the space map, while medium and large ones will, only an approximate shape and location will be shown.
4. "Commanding via Space Map" - This will behave much more like a classic RTS when tapping and dragging will create a selection zone, that any units included in will be "selected." Then, tapping on the group, dragging and releasing on their destination will move the entire group. Tapping on anywhere but the selected group will deselect them.
5. "Battles" - If any friendly units are being attack, the circle surrounding them will flash from yellow to green.

Game Balance

6. "In-game Currencies"
 1. "Brogguts" - This is the basic unit of currency of the entire game. Brogguts are abundant in space, and collecting them is easy. Young brogguts carry the smallest amount of value, old brogguts are less common and are more valuable, and the most valuable/rare brogguts are ancient ones. Brogguts are used to buy craft, buy structures, and purchase upgrades. Most craft and structures also require metal (refined brogguts) to be bought/built. Brogguts are available in every map setting.
 2. "Metal" - This is refined metal created from brogguts, using refineries. For every 10 units of brogguts that are collected, you are able to refine 1 unit of metal. Metal is a must have for building craft and structures, and although it is considered to be a secondary currency, if it is available in the current skirmish, it is highly recommended to the player that they refine brogguts and use metal as much as they can. Metal is not used in the purchasing of upgrades.
7. "Gameplay Balancing" - Every variable that could possibly game balance will be written into and read from a specific file (with "static const") that can be easily edited so that when changes need to be applied, the code remains the same. All craft specifications, structures specs, and upgrades details will be stored in this file should all easily be changed. During the play test phase, this file will be considered extremely dynamic, and will be the most common changed file once the framework of the game is laid.
8. "A.I. Opponents" - If there does end up being an A.I. opponent skirmish option, then there will need to be a separate A.I. state-chart that will determine the playing habits of the enemy during skirmishes. Testing will involve pitting the A.I. against itself, and putting humans against it. The latter will be difficult since no one will be have "mastered" the game yet.
9. "Game Incentive" - These are things that will encourage the player to keep playing, while not being so obvious about it.
 1. "Persistent Brogguts" - The most simple and obvious incentive to play the game is to increment your broggut count to as high as possible. Brogguts are abundant, so collecting them is easy, and when you get additional mining ships you develop an income even when the game is off.

2. "Space Years" - When you collect brogguts, you essentially move forward your progress in "space time" which is a measurement of how experience you are. There will be many levels (30?) of space years, and every time you make it to the next space year, you unlock a predetermined craft, structure, or upgrade. Space years are the equivalent of XP in other games, creating the illusion of progress. Whenever the player gains a space year, it should be a very positive display.
3. "Community Participation" - There will be a ticker marquee that scrolls on the main menu/splash screen that displays random info about the total collected brogguts out of all players, and the current players standing in all of that. A small server will be needed to host that database, but it should be very lost cost.
4. "BaseCamp" - Hopefully the fact that the player has a base that gets permanently affected by what they do in the game (missions/challenges) will give them incentive to build it up and make it strong so it is well protected.

Production

1. "Design Topics" - These are documents and charts that describe the game, but will not contribute to the functionality.
 1. "Design Document" - Create a document that fully explains and encloses the plan of the game. Describing all details and exact numbers is not necessary, and all features are prone to change. This is that document.
 2. "Graphic Spreadsheet" - Create a spreadsheet that outlines and describes briefly all of the graphics, sprites, and images that are needed for the at least the primary features. Concept drawings and details will be included (scanned and referenced by figure number) and are important so that the artist knows what the general need is.
 3. "Unit and Technology Tree" - Create a graphic flowchart that describes the entire game's possible progress, with all space years and their corresponding unlocks mapped.
 4. "Mission/Challenge Map" - Create a flowchart that shows the progression of missions (and corresponding maps) that the player is able to play, in however linear fashion they are connected. Enough missions are needed to have the player maximize their space year (or at least the unlocks) to have a bunch of missions with everything accessible.
2. "Functionality Topics" - These are the things that will need to be developed using code and other means of getting the framework of the game running. All of these are compounded on the previous. Graphics will be inserted over time once the drawing controller is in place.
 1. "Gameplay Constants" - This file will include all the values that affect gameplay balancing and constants that will be used throughout the game's code.
 2. "Drawing Controller" - Start by building a solid and efficient framework that will draw objects and text into a specific view. Scrollable views and large maps should be implemented and expected, respectively. Space backgrounds will be generated.

3. "Audio Controller" - Implement a simple controller that will respond to play sounds if called upon. Multiple sounds need to be heard at once, music needs to be played smoothly in the background, and both sound effects and music need to have separate volume control.
4. "Input System" - Get the touch input to recognize which view is being touched, where the touch is located, how many fingers touched the screen at once, if the finger(s) is dragging, and where the finger(s) released.
5. "Object Infrastructure" - Get a controller that manages all objects that either need to be drawn or updated logically and check for collisions.
6. "Unit Control" - Make objects respond to input in the desired way. Implement the control scheme described previously. Units should be able to respond to commands.
7. "Broggut Generation/Interaction" - Create the controller that generates random shaped brogguts and places them on predetermined places on the map. This will be placing them based on files, but should be tested with hardcodes.
8. "Unit Behavior" - Craft and structures that are friendly behave in certain and specific ways. Get them to do this seamlessly. Commands will be implemented here.
9. "A.I. Opponent" - Create a basic (and hopefully complex) A.I. that will provide an interesting challenge to a player in a skirmish game. It should be able to play on any map.
10. "Map Creation/Loading" - Make the controller that loads and creates the current map from a plist file and places all objects successfully.
11. "Space Map View" - Enable the gameplay state to toggle back and forth from the zoomed in scrolling view and the zoomed out space map. Control and input is handled differently on these two views.
12. "Users Interface/Menu" - Add the splash screen and main menu, touchable buttons, and the sidebar in the gameplay setting. Also, enable objects to display Tip Boxes pointing at them so the tutorial levels can be created.
13. "Level Creation" - Make the levels/missions and play test the crap out of them.
14. "Polishing and Testing" - The final stretch, getting the rest of the graphics put into the game, making sure the frame rate stays playable, and play testing the balance over and over again.
15. "Marketing" - Buy cheap advertising space on relevant websites (iPad goers and gamers).
16. "Submission" - Submit the game to the App store for review.

Budget

1. "Designing" - Personal and scheduled time, estimated cost \$0.
2. "Programming" - Personal and scheduled time, estimated cost \$0.
3. "Graphic Design" - Hired artist(s), estimated cost \$150-200.

4. "Audio Design" - Personal time, makeshift sounds/composed music, estimated cost \$0.
5. "Level Design" - Personal time, friends, and possible hire, estimated cost \$50.
6. "Advertising" - Paying for banner space and ads, estimated cost \$150-200.
7. "Total Budget" - This budget totals a maximum cost of \$450.

Deadline

This project must be completed by May 13th, 2011. Project complement entails that the game has been submitted to the App Store. It may still be in review.

Tutorial Levels

1. Empty space - Display the background story (intro?) and a brief synopsis of why the player should care about playing this game.
2. One Ant ship - Show how to command a single ship (tap and drag).
3. One Ant ship - Show how to select a ship, how to move it around
4. One Ant ship - Show how to move a selected ship around and how it scrolls the screen, how alerts are used, and how to move long distances
5. Two Ant ships - Show how to select multiple ships, and show how they move together, and how the screen scrolls with them
6. One Ant ship, one enemy block - Show how attacking works (automatic) and how to view HP
7. One Ant ship, one enemy ant - Show how attacking another ship works, and how if it's weaker, it will flee.
8. One Ant Ship, two enemy ants - Show how attacking other ships that are collectively stronger, they will gang up on the attacker
9. Base Station, One Ant ship, 2x2 block of brogguts - Show how mining works, and how collecting small brogguts works
10. Base Station, 16 Moth Ships - Show how to use the overview map to move the view bounds around and select ships.
11. Base Station, sidebar added - Show how to build craft and buildings
12. SEND TO BASE CAMP