



Cohort Project

Development Log

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Cohort Project Start (12/01/22 – 18/01/22)

This week as a cohort we decided on the main tasks and allocated tasks between teams.

Primary Tasks

- Networking - Autumnsoft
- Map Design - Case Games
- Movement Mech - Stupid Bricks
- Movement Aircraft - Case Games
- Transformations - Case Games / Stupid Bricks
- Units - Random Idiots
- Bases - Super Cool Game Team
- Resource and Bases Generating - Creative Team Name
- Skills/Combat - Foundation Games

Secondary Tasks

- Art/Modelling
- Sound
- UI - Random Idiots

Base API (19/01/22 – 29/01/22)

This week as a cohort started by deciding on Alpha, Beta, Gold deadlines for the project:

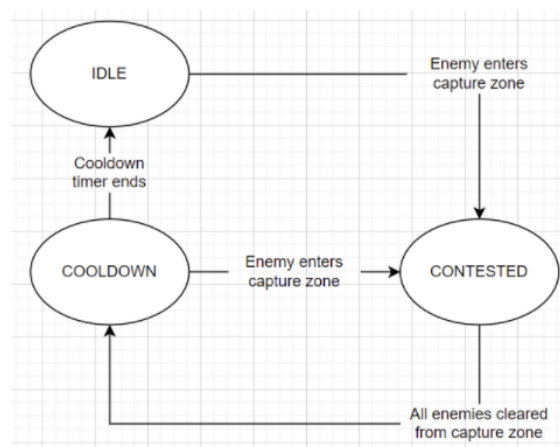
- Alpha - 22nd February
- Beta - 29th March
- Feature Freeze - 26th April
- Gold - 3rd May
- Presentation - 12th May

Next, I started working on getting the project up and running. I created an empty unity project and added it into the Git repo. I set this up with the new Unity input system as requested by another team.

I then started on an API and a base prefab that other teams could begin to use, specifically the resources team. I created a BaseController script with a rank, type and team owner which gave the basic API needed for interaction with the base.

Base Capturing (02/02/22 – 08/02/22)

This week I started adding in a structure for the base capture logic which works as follows:



I set this up with a capture trigger collider which detects objects with an Entity script entering and exiting the zone.

I also setup a structure for the defences, where bases have certain defence locations that players can be interacted with to build and repair defences. Finally I added in some UI to display this for Matt to easily hook-up with his defence creation.

Win Conditions (09/02/22 – 15/02/22)

This week I focused on getting the win conditions of the game working, I used Liam's game timer script and Ed's base ownership checking but merged them all together and got them all working correctly. The three-win conditions of the game are as follows:

- A team reaches a score threshold; score is earned by owning bases.
- The timer for the game runs out, the team with the biggest score wins.
- A team owns all bases - and therefore wins by default.

These three are all now working correctly together, however nothing yet happens when the win condition is triggered except for the timer stops and the bases stop producing score.

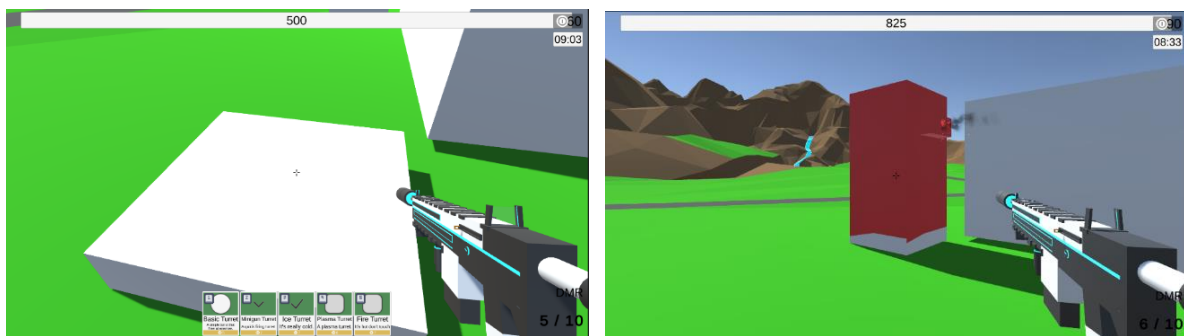
Finally, this week I organised the folders of our scripts and modified Liam's defences to work together with the original defence structure I created, I removed assets that weren't needed and focused on simplifying the code and the branches.

Merging (16/02/22 – 22/02/22)

In the reps meeting this week I raised the issue that my team doesn't have many tasks to get on with and therefore we have been tasked with merging together the systems for the Alpha next week. As a team we made the decision to meet on Monday and work through the day to merge things together.

I started merging work on Friday by getting the resource generation, bases and combat systems working together. I created a new scene to be the main Game Scene and managed to setup a simple area with a few bases.

This took me the majority of the day to do and I ended up with a little prototype of the bases and the combat. There are still a few bugs with the systems but nothing that needs to be fixed before the alpha submission next week.



The player can move around the map and shoot, they can capture bases that aren't theirs and can interact with their bases to build defences. I also attempted to add in the resource generation into the GameScene, however after a discussion with the resources team, I realised I had changed too much and they weren't happy with this, I reverted my changes and planned to merge their work on Monday in person with the team there as well.

On Monday a few of the teams worked together to get things merged for the Alpha, and we managed to get the bases and resources easily together, but there wasn't much else for us to do as other teams were still working on completing their tasks and merging them.

Alpha Submission (23/02/22 – 01/03/22)

This week we presented the Alpha. But the morning of we realised that one of the teams had caused the project to break in the develop branch. The networking team did a great job at fixing this while we had our reps meeting and talked about what everyone had done and what the next steps were. We finally managed to

show off the alpha but due to the late minute development and fixing, there wasn't a lot to show that was working together.

This week I mainly focused on fixing some of the bugs that occurred in the play test. The first one was that the UI for base interaction (defences and units) wasn't working correctly over the network, this was fixed easily by adding if is local player statements to the UI.

Next, I took on the task to give players teams and get them spawning at their correct bases. This was simple to do but allows the functionality of the bases to work as intended without having team names being empty strings or manually setting the team names of the players.

Finally, this week I added in some lasers into the bases that change colour based upon the team that owns it and whether it's being contested. Currently these are just a massive cylinder but in future I think they should be a shader or a particle system instead as they will most likely look better when being flown around by the players.

Bug Fixing (02/03/22 – 08/03/22)

This week I started by giving players a team when they spawn and spawning them at their initial base.

I also fixed some corruptions with the materials that had happened and fixed a bug where the turret model wasn't being destroyed.

Finally, I also fixed an error that was occurring when the defences get destroyed.

A Week Off (09/03/22 – 15/03/22)

At the end of last week and this week I took some time away from university for personal circumstances and so was not able to attend the weekly meeting. However, I did attempt to do some work at home, and mostly focused on fixing issues with our work.

Due to merging errors our base prefabs were broken and so I spent some time fixing those and getting those running again. I also fixed a bug with the capturing where in the cooldown state, teams could begin contesting a base without waiting for the cooldown to drop to zero.

I wanted to achieve more this week, however there were so many bugs in the game that testing was rather difficult.

We did start discussing UI design and managed to come up with a design for the HUD, which looks pretty good. There needs to be some coordination next week on who will be implementing this design though.

Broken (16/03/22 – 22/03/22)

This week I tried to start working on making the bases better using the models that had been added to the project. But due some recent changes, it was difficult to test. The following issues were:

- The interact action in the input actions had been deleted.
- The game scene wasn't being loaded from the main menu but another testing scene.

I started by getting the game scene loaded up instead so I could actually move around and see the new bases. I also added back the interaction action and went through to set the references to it correctly again.

Finally, I then started building some new bases around the map just to get something better looking working for the Beta. This is when I realised that a new player prefab was being used that didn't have our Entity script on it and so none of our base interaction was working anymore.

I waited until I could meet with a few of the other from the networking and player movement team to figure out what was going on and why we had a new player and managed to get something working correctly after some discussion.

Beta Preparation (23/03/22 – 29/03/22)

This week we were preparing for the beta, the goal was to have a code freeze this week to focus on bug fixing but that didn't happen. I tried to focus on fixing issues this week but didn't manage to get very far with any of them.

Beta Submission (30/03/22 – 05/04/22)

This week was the beta submission, we managed to play the game but still have no end state and a lot of issues. We decided that my team would now be the play testing and user feel team, so we planned to meet the following Monday to play test the game and find as many issues as we could.

During our play test we went through all the existing issues and closed any that we knew were now fixed or couldn't reproduce, we then went through the game and listed any bugs and errors that we found. We also listed enhancement and player-feel issues such as the plane being too slow.

Cohort Meeting (06/04/22 – 12/04/22)

This week we started with a cohort meeting to assess how the project was going and to attempt to fix any concerns the cohort had. We came to the conclusion that weekly demonstrations of what everyone was doing made sense and we should be play testing as a group each week as well. We also came up with a list of things we needed for the game and from that list decided what we wanted for next week.

Features still to implement:

- Health Bars (both on the client HUD and in world-space above other players heads).
- Damage feedback to indicate when you've shot someone.
- Tutorial/guide on how to play.
- Respawn system showing UI with a delay timer.
- Ability to change skills in the respawn UI.
- Base placement around the map.
- Ability selection on initial spawn.
- Player cards that balance teams automatically.
- Nameplates for players.
- Team indicators (mech colour, health bar colour etc).
- Ability to buy AI.
- Ability to control AI and for them to move and shoot.
- Ability to heal at bases.
- Increase the jet movement speed.
- Colliders need to be tagged with ground.

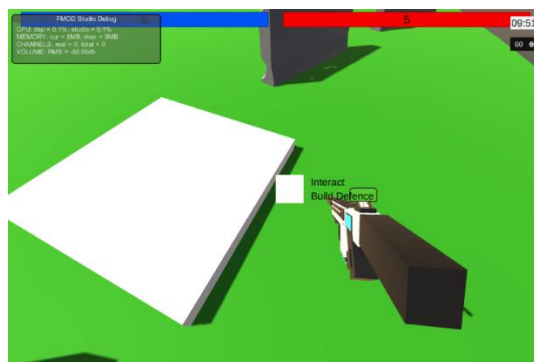
Features for next week:

- Health bars
- Respawn system
- Base placement
- Team indicators
- Nameplates
- Buying AI
- AI moving and shooting

The session was very productive, and I think got most people motivated about the project again.

Firstly, I fixed a bug with the turrets where the state wasn't being send over the network, meaning infinite number of turrets could be placed on one location. I also fixed a bug with the turret health so that turrets could be destroyed again.

I also added in a UI prompt when in range of a unit generation block or a base defence location so that it's easier for the players to understand what to do.



Over the week I took up the tasks of the respawn system. I set the mech model to be disabled on death and added some UI to show when the player dies as well as a

respawn button that is only interactable after a certain amount of time. After this I added in a mini-map style view for the player to select which of their bases they want to spawn at.



With several systems now requiring the cursor to be shown or hidden, I added in a CursorManager script that had static functions, allowing all the systems to work correctly without fear of the overlap causing issues.

This week I also added healing from bases when the player is inside a capture zone of their own base and the base isn't being contested or cooling down.

As Ed managed to get the model in for the player, I edited the materials to create one for blue as well as red and setup a function to change the colour of the player based on what team they're on.



Finally, we had another play test on Monday where we found more issues and closed ones that had been fixed.

Small Bug Fixing (13/04/22 – 19/04/22)

This week I didn't do too much work, I managed to fix a bug where the material for the player had been unassigned for each team as well as fixing some bugs with the cursor manager.

I got the cursor manager working with the console as well as making some fixes for the confining.

Death Capturing and AI Rework (20/04/22 – 26/04/22)

This week I fixed a few errors with the death mini-map camera being un-set and a network object error with the player respawn positions. I also fixed an error in the skill tree where an event was being subscribed to in OnEnable and OnDisable which was causing an error.

This week I fixed a bug where players would still capture bases on death, since the player model was still in the capture zone. This was simple enough to fix as adding a check to make sure players in the zone were alive was all that was needed.

I also added in a check to make sure that the unit spawning UI only showed for local players, as it was showing for everyone.

We also had a discussion about the capture speed in our group meeting this week, we decided that to make the AI more effective and useful in the game they should capture bases at the same speed as players, so we reduced the capture speed of players and increased the speed of AI.

Due to a change in the skills UI, I managed to simplify the death map to remove the tab system and just have the respawn map show. I plan later to rework the map so that it is easier to use and more interactive.

Finally, this week we had a discussion about the AI and what we wanted it to be compared to what was implemented in the game. We decided that the currently implemented map to control the AI wasn't intuitive enough and we wanted to rework it to be similar to the death UI. We also decided to simplify what the player could do with AI, we decided that AI should only be able to be sent to bases and what the AI did depends on what team owns the base. If the base is owned by the same team as the player controlling the AI then AI would defend the base, and if not the AI would attempt to take over the base by attacking.

Simplifications (27/04/22 – 03/05/22)

This week I started by getting the unit spawning hooked up with the AI map, so units are designated to defend the base they are spawned at, meaning that the AI map and new AI system is fully functioning. I also added a separate camera for the death and AI map screens; however this was made redundant later in the week when I reconfigured the maps to be full screen later.

I also fixed a few bugs including the name tag flickering and the death mini-map camera being unset.

This week I also updated the respawn UI to be in line with the rest of the UI style. As mentioned, I also made the AI map and the respawn map full screen and added some more interactivity such as displaying when the bases are being contested. I had some issues with the positioning of the base selectors on the map but eventually managed to get this to work correctly.



I also made some changes to the unit spawning and defence UI to simplify it and to get the colours updating correctly per team. I reduced the options of the turrets down to the one basic turret.

Finally, I also got the entity script on the VTOL setup with the values, duplicated from the entity script on the mech. This makes sure that the capture zone will detect both the mech and plane versions of the player.

Submission (05/05/22 – 11/05/22)

This week was final bug fixes and submission. We decided to have a code freeze in the main branch on Friday and then teams could work in their own branches if they had things to improve before the deadline. A lot of our capture code was changed on Friday, I think due to some bugs that were found in it. I didn't know this was happening in time and so our capture work ended up not working correctly in develop, I spent some time fixing this as well as some other bugs that had arisen with our turrets over the last week.

The rest of the week I spend playtesting and improving the game in our branch, including updating the UI interact prompts when turrets were build or damaged.

I also tidied up our code, making it more readable and understandable, and removed any redundant scripts from the project.

Finally, this week I prepared our submission, writing out the peer review, post-mortem and creating builds of all our games.