MicroRTS Checkpoint 2

MINS bot (Matthew, Miguel, Narayan, Ilias, Akshay)

Progress

We decided to switch to a hardcoded approach and evaluate the current state of the board and have units make decisions solely based on that. We began by implementing the actions for individual units. Each of us selected a unit for which to devise a simple plan of action and proceeded with basic implementation.

Matthew:

I implemented the initial code for all units to set their actions without conflict and began to implement the Barracks AI.

Shay:

I implemented the Action base for the Heavy Units, and prototype movement as to how they behave when there are no enemies nearby. The movement stuff will change when we add some pathfinding for all the units based on the strategies we implement.

Progress

Miguel:
I implemented the basis for the action of the ranged units. The general idea for now is that the unit will retreat if enemies get too close (1 space away), and will attack otherwise. I wanted to establish some sort of self-preservation due to their weak nature. As the bot becomes more sophisticated with its strategy, the individual strategy for the ranged unit will also change. A possibility moving forward could be to have the bot let direct-combat units occupy the enemy units and form a sort of wall to keep the ranged units in a less exposed position. We also may also implement a strategy that doesn't use ranged units. The pathfinding still needs to be refined for all units.

Ilias:
I refactored and cleaned up the code that was raising warning and places that need optimization (provided by NetBeans IDE). I partially implemented the action decision process for light units. The way it works now is that it moves light units till they encounter a nearest enemy on the board. In the future I am planning on revising the function so they can cluster together and attack enemies more aggressively depending on the strategy being used.

Plans/Focus Going Forward

Fix current problems, and have the individual unit actions reflect that, implement unit pathing across different maps/terrain and resource management for producing units. We also will look into prioritizing the type of units each unit type will attack, ie. Heavy units prioritize attacking heavy first, then light, then ranged.

A possible idea for the future would be to implement a strategy that creates a division of labor - the bot would decide to send a number of certain units to do a task, whether it's resource gathering or attacking an enemy unit or group of units. This would be advantageous because it would allow the bot to play as a human would, delegating a broad task to multiple units. Then it could be up to the unit on how to specifically execute the task.

Plans/Focus Going Forward

Matthew: work on barracks unit and pathfinding

Ilias: continue working on the light units

Miguel: continue working on ranged, work on worker units

Shay: continue working base and heavy

Narayan: work on unit logic for all units

Live Demo

Backup video:https://imgur.com/EiI84fq

Additional Items for Grading

Meeting Attendance Sheet

10/3/2023 - All members attend

10/10/2023 - Narayan absent. All other members attended

Matthew Berry

Ohio ID, Github Username: mb135821, MatthewBerry135821

Contributions: Added code for units to take actions and implemented an initial AI for Barracks

https://github.com/OU-CS3560/microrts-f23/commit/1ec492067dd931973929f96e269a8173efbf65b9

https://github.com/OU-CS3560/microrts-f23/commit/165fbbc0aba44279b63e7d2f211e97ff803e53a9

https://github.com/OU-CS3560/microrts-f23/commit/ab77b18ed9e11e47bffae9c580c040db14b5ed11

https://github.com/OU-CS3560/microrts-f23/commit/dc36adf9521fec6573a2c82b8b9c0b35e04bf6a5

Akshay Patel

Ohio ID, Github Username: sp550519, Shayz614

Contributions: Added code for prototype HeavyUnits actions and movements. (pushed it all at once)

Evidence (Commit URL(s)?):
https://github.com/OU-CS3560/microrts-f23/commit/efd26b68d826e8122660fc3dc934e7e94b756b22

Ilias Baktybek

Ohio ID: ib873519, Github Username: iliasbaktybek

Contributions: refactored some code and implemented light unit movement and action code.

Evidence (Commit URL(s)?):

https://github.com/OU-CS3560/microrts-f23/commit/696de89eca83dc71feb57ad5e8f0376a20f0318b

https://github.com/OU-CS3560/microrts-f23/commit/ea04a099d0e9d2b9d52be2ea0f886ad3b45b6635

https://github.com/OU-CS3560/microrts-f23/commit/36a1b1587b89cab4ccbf3d192e3a09b969e218cd

https://github.com/OU-CS3560/microrts-f23/commit/3eed73da1ec3002ef63cc57e7f4ec4c4032287b1

Narayan White

Ohio ID, Github Username: nw566721

Contributions:

Evidence (Commit URL(s)?):

Miguel Quemado

Ohio ID: mq003322, Github Username: MQUEMADO16

Contributions:

I implemented the basis for the ranged unit set action

Evidence (Commit URL(s)?):

https://github.com/OU-CS3560/microrts-f23/compare/165fbbc0aba44279b63e7d2f211e97ff803e53a9...07bc9e39249ce79560c7fb16b1e392d8b426b65f