Quinn Roemer & Logan Hollmer
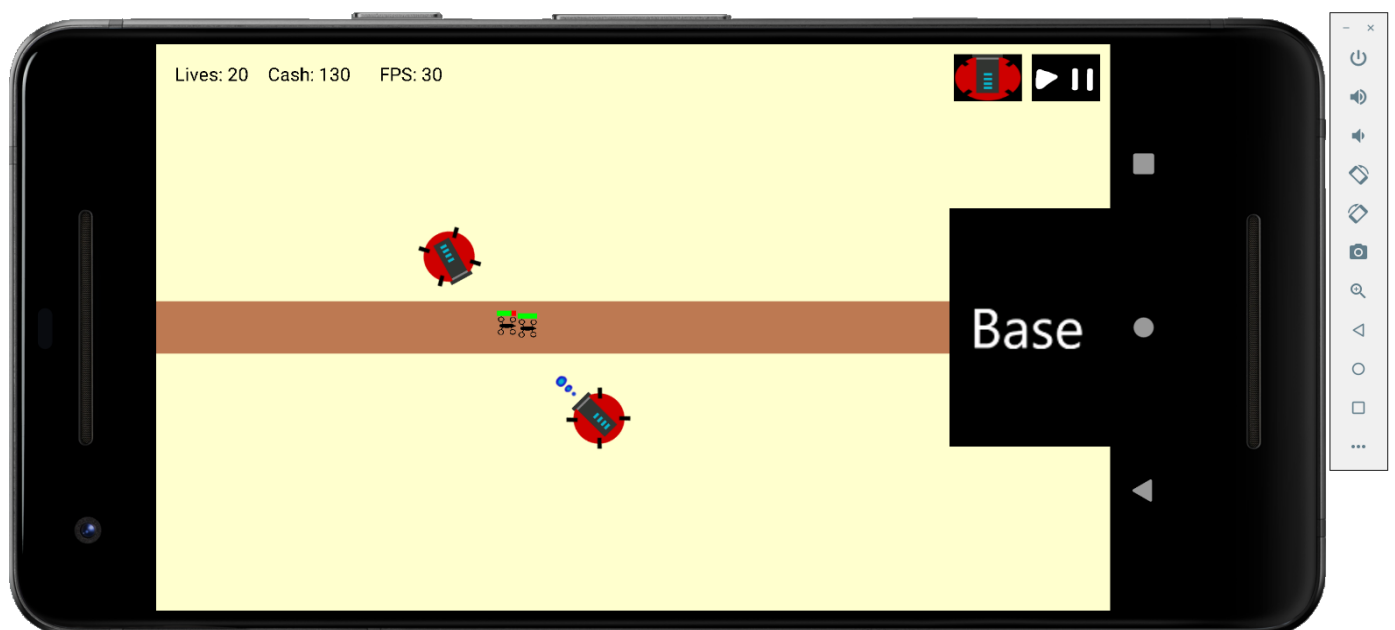
Dr. Daryl Posnett

CSC 133 MWF 9-9:50am

April 13, 2020

Tower Defense Report - #1

Our team (Quinn Roemer & Logan Hollmer) are working on the tower defense space defense design. So far we have implemented basic enemy pathing via a movement strategy and a single enemy unit type (the drone). This enemy is built using a builder pattern inside of a factory pattern. We have implemented a single tower that rotates using bitmap reassignment (something we want to improve in the future). This tower is the plasma tower and fires fast, dealing lower damage. By clicking on a turret a circle will be drawn that defines its range. The tower fires projectiles which are individually defined game objects. The game has buttons for play/pause and placing a tower as well as resources (cash) which are used to purchase towers. If an enemy reaches zero health, it is removed and cash added to the players balance. If an enemy reaches the base, it is removed and a player life is subtracted. If all enemy waves have been defeated and the player still has at least a single life, the player wins, if at any time the player's lives hit zero, the player loses. In each condition, a win/loss screen is shown. As of now, the player can restart the game by pressing the play/pause button during this condition.

As we develop our project further we still have plans to implement several more enemy and tower types along with a more robust way of handling the pathing that can deal with curved paths. Also, we have yet to implement other maps and a selection screen to choose what map to play on. We plan to do a fair amount of refactoring as we enforce certain design strategies on our code. Enemies and towers will be animated during movement, and we will design custom assets for our game to replace the generic assets we are using right now.

Image of the game running

Quinn Roemer & Logan Hollmer

Dr. Daryl Posnett
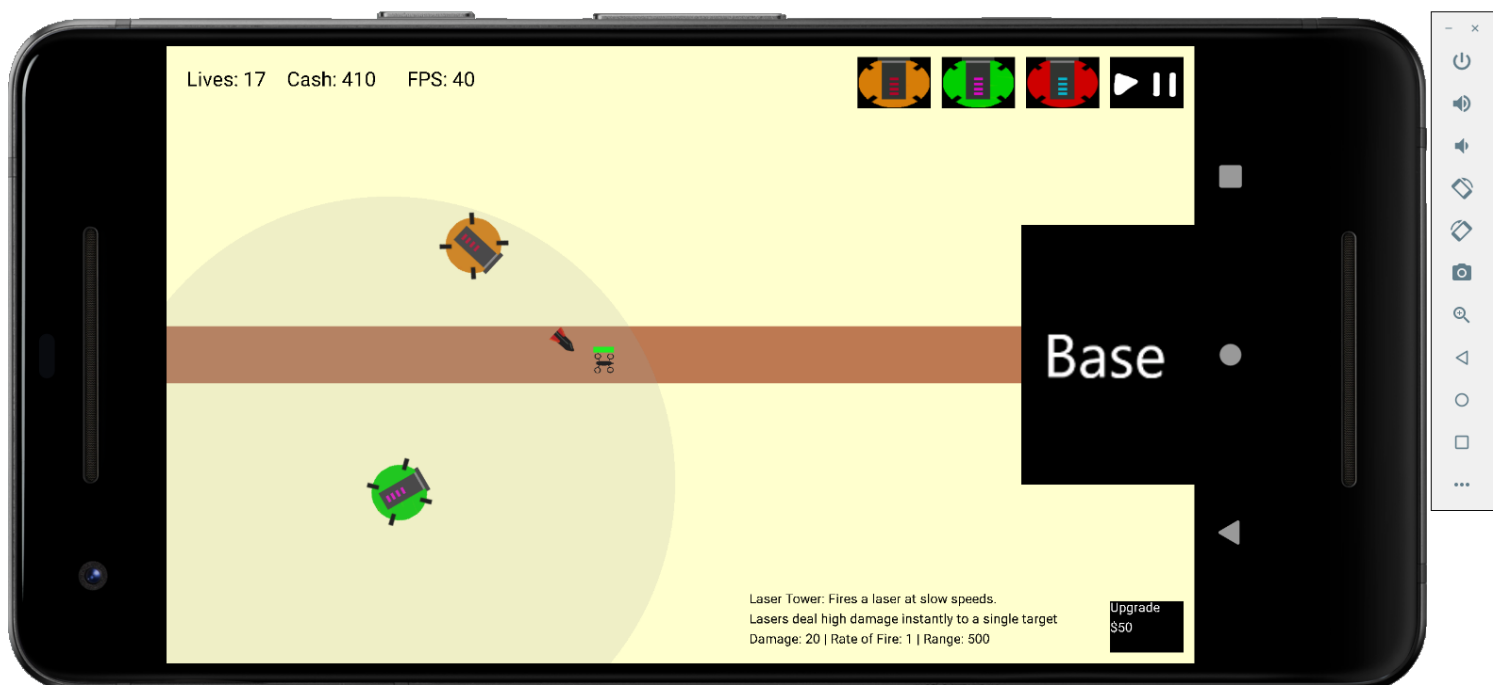
CSC 133 MWF 9-9:50am

April 20, 2020

Tower Defense Report - #2

Our team (Quinn Roemer & Logan Hollmer) are working on the tower defense space defense design. In this last week we have made several big updates to our project since last week. We have added 2 new tower types, a laser tower (the green one) and a rocket tower (the orange one). For reference the plasma tower is the red tower. We also refactored how the projectiles work, now each tower has its own projectile class rather than the projectiles sharing a default class. This is because we realized that we wanted each projectile to behave and be drawn slightly differently. The plasma projectile flies in a straight line till it hits something or leaves the screen, the rocket projectile will follow a target till it dies or the projectile hits something, and finally the laser projectile deals damage instantly to the alien it targets. Note the laser is much different from the other projectiles which can hit any target that comes in it's way. Since a laser is small and accurate it can deal higher damage to the exact alien it wants to target. When a tower is clicked the tower's description and stats are now displayed on the lower right. There is also a button to upgrade the tower, when the upgrade button is clicked the tower's range, rate of fire, and damage are all upgraded by a certain percentage. The last thing we added was a short description for the aliens. If an alien is selected then a description about the alien is displayed in the lower right where the tower information is usually displayed.

As we move forward this next week, we plan on implementing more alien types. We will implement a soldier enemy type and try to implement the behemoth. Since we are adding more aliens we will also be adding some more graphics to represent the new aliens. Right now we are still using hastily created bitmaps, but plan on adding nicer images in the future. We will also be adding more advanced alien pathing with the goal of having our aliens follow a path with turns in it.

Image of the game running

Quinn Roemer & Logan Hollmer

Dr. Daryl Posnett

CSC 133 MWF 9-9:50am

April 27, 2020

Tower Defense Report - #3

Our team (Quinn Roemer & Logan Hollmer) are working on the tower defense, space defense design. In this last week our efforts concentrated on implementing a method for defining more complex paths in the game and more enemy types. We have added 2 more enemy types, a cyborg soldier, and cyborg behemoth. Each enemy is built using our previously implemented factory structure allowing for greater customization of the underlying data for each enemy. While being built, a movement strategy is assigned (based on the desired type of enemy), a health bar attached, and important variables such as health, location, and bitmap are instantiated. Because each enemy implements an interface, waves can now contain multiple enemy types. In addition to the new enemies added to the game a new way to define the path an enemy follows was implemented. Instead of just moving the horizontal location of the enemy across the screen, a path object is used. This path object allows us to define paths with straight lines, arcs, and even loops. Once created, a private method converts this path object into an array list of points that is used by the enemies to iterate through (move) based on their individual speed. Lastly, the way enemy spawning works was overhauled. Instead of spawning a "clump" of enemies all at once, the enemies now spawn one at a time with space between each unit.

Moving forward this week we will be implementing level selection and map types. We plan to look into and implement animation for the enemies for moving and death. We will build better assets for our game and restructure some areas of the code that we believe need work.
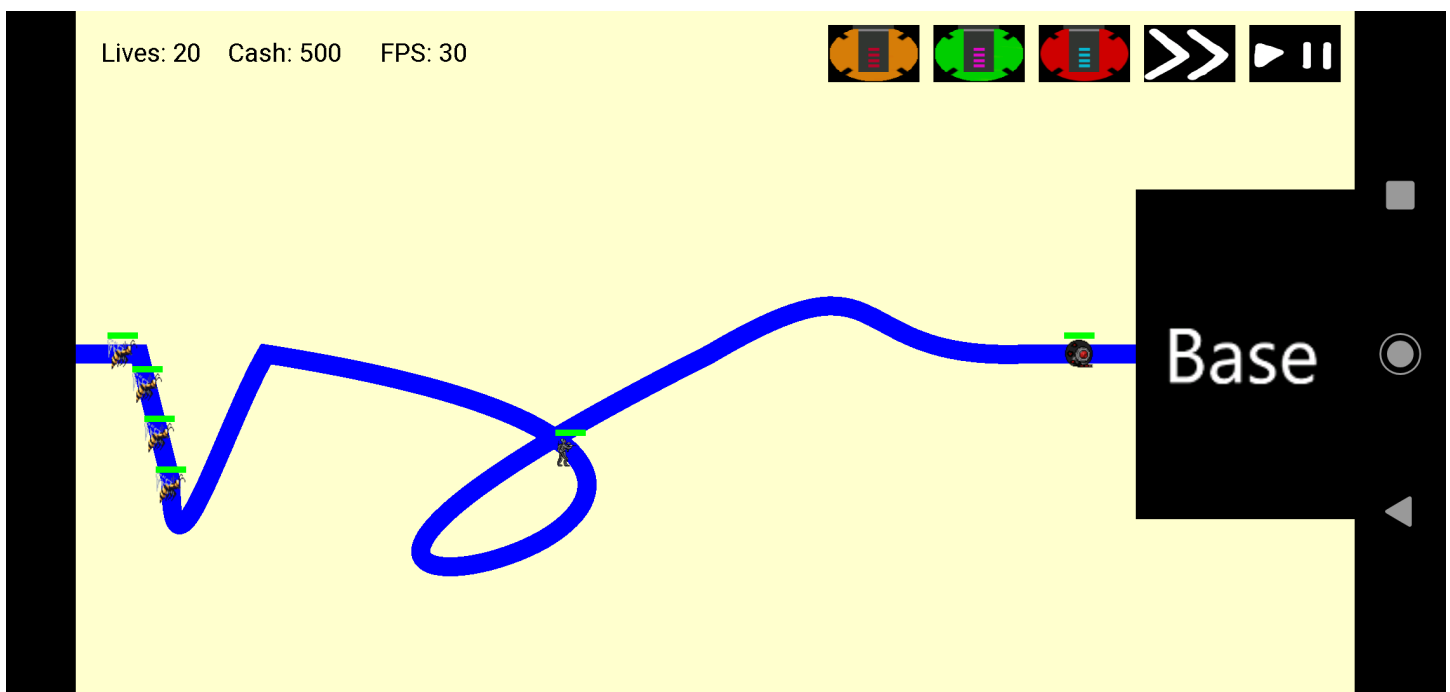
(Note: Screenshot taken on Android device)