# Team 7 Game Milestone Four:  Robust Game

**Team Members:**

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|---|---|---|
| Shuoyi Ma | 23162143 | l0e0b |
| Xianchen Long | 35526145 | u7h0b |
| Dongan Liu | 44846153 | l1m0b |
| Sizhuang Liu | 20091147 | m4c0b |
| Guanting Li | 36807155 | n0k0b |
| Xin Shi | 13151148 | e7l0b |


**Overview**

Listed below is the milestone for Team 7: Mystic Crusaders. We have the proposal portions inserted below, with commentary on how each goal is accomplished.

**Game Proposal Features**

Week: March 8

- ❏ Rigid body dynamics effects(momentum, enemies can be knocked back by hero attack)

  Complete. Implemented the momentum in milestone 2.

- ❏ Implement boss class.

  In a way, covered by third enemy type, Amplifier from the last milestone. We found more emphasis on areas that can enhance gameplay experience instead for this milestone, and the proposal given was created in a time where we did not realize how many other things can be worked on outside of boss systems that can enhance gameplay.

- ❏ Generate boss enemies in game

  Amplifiers are generated in-game above map level 2.

- ❏ Special visual effect for boss attack

  Amplifier turns enhanced enemies into different colors.

Week: March 15

- ❏ start hometown system

  Again, we were limited in time towards what we could accomplish. Implementing game-enhancing features seemed to be more critical to our features, as we have replayability sufficiently covered already by our multiple levels, hero levelling, and competitive nature of the game. If we are to implement this, it would be in the near future.

- ❏ Implement Interactive particle system (Hero and hero's projectiles have a trail of particles goes after them when they move in high speed)

Complete.

- ❏ Create mesh object for hero and/or boss

  Complete. Created mesh for tree

- ❏ Add obstacles into game

  Complete. Trees, and tentacles are both obstacles, with the latter damaging the hero when they touch.

- ❏ Implement search algorithms (A*) for pathfinding, or other similar features

  We decided not to implement A* pathfinding because it decreases the randomness of enemy movement

Week: March 22

- ❏ Audio (sound effect)

  Complete. Implemented sound for laser, fireball, ice, lightning and level transition.

- ❏ Support real-time response rate

  Complete

- ❏ Memory management

  Complete. We have been aware of memory usage throughout our previous milestones, which made memory management much easier for us now.

- ❏ Physics effects correctly integrated in time

  Complete. Physics effect includes particles system and knock back momentum.

- ❏ Verify on track for milestones

  Complete

**Milestone Requirements**

For this milestone you should have a complete playable game. You should continue to support all features from prior milestones. You should support robust continuous play with no memory leaks, crashes or glitches, and be able to extensive playability testing, alignment with game development plan.

(75%) Milestone requirements:

- ❏ Include complete playable prior-milestone implementation

  Complete

- ❏ Sustain progressive, non-repetitive gameplay for 6min or more including all new features. The game should not terminate early and should allow infinite even if repetitive gameplay

Complete

- ❏ Support real-time response rate (i.e. lag-free input).

  Complete

- ❏ Include proper memory management (no excessive allocation or leaks). The game should not have any undefined behavior, memory leaks or random crashes. The game should not hog memory even after extended play time.

  Complete.

- ❏ The game should robustly handle any user input. Unexpected inputs or environment settings should be correctly handled and reported.

  Complete

- ❏ The gameplay should be real-time (no lag). This included improving your collision handling using effective detection strategies. You should support dozens simultaneously moving main or background assets. - The game should allow for some form of state saving for play “reload”. Users should be able to pause and restart in a graceful (if not perfect) manner.

  Complete. To pause the game, press space bar.

- ❏ The physical effects should be correctly integrated in time and should not be locked to the machine’s speed by correctly handling the simulation time step and integration.

  Complete

- ❏ Stable game code supporting continuing execution and graceful termination.

  Complete

(25%) Creative: You should implement one or more additional creative elements. These can include additional assets, rendering effects, complex gameplay logic, or pre-emptive implementation of one or more features from subsequent milestones.

- ❏ Level transition: THE GOBLET DEMANDS SACRIFICE. Kill a number of enemies to advance to the next stage; transition is also managed by having the hero use a goblet-exclusive teleport skill, triggered upon contact with goblet.
- ❏ Audio now makes game more responsive by indicating when something is fired.
- ❏ Better UI
  - ❏ We now indicate current magic ability with a skill-swapping animation.
  - ❏ Amplifier enemy’s “buzzing” animation indicates which enemy is enhanced, now gives users a better idea of which enemy is being enhanced and when.
  - ❏ Indicate current map level
  - ❏ Indicate how many enemies left to kill to enter the next map level
- ❏ Phoenix skill: a phoenix is spawned around the player, and actively attacks enemies with its own fire skill. The powerful beast loses life force with the passage of time, and can be re-summoned once it withers away.
- ❏ Particles system: phoenix emits particles while it is active.
- ❏ Implemented multiple map textures & obstacles