Basic systems

Player HP is 100%

Ammo tank holds 100% ammo

Player weapon has two toggles

First has four positions – fire/earth/water/air. Each has a heat range of 0-100.

Second has two positions – absorb and project.

Enemies have two traits – element and type.

Element trait matches four weapon elements.

Type is three models and AI:

Mantis model moves to melee and attacks quickly but does the least damage.

Troll model moves to melee and attacks slowly, but does the most damage.

Squid model moves to just within range of the player and attacks from range until player moves back.

Weapon logic:

Each element position’s heat goes down 2/sec.

On shot: Check element and project toggles.

If project: spawn projectile with element, spend 5% ammo, gain +4 heat. ROF 1/sec.

On hit: If projectile element matches enemy weakness type, hit does 5 damage. Check yellow life bar against red bar: if different, set yellow bar to red bar value.

Else if projectile type matches enemy strong type: hit does -5 damage.

Else: hit stops enemy movement for 2 seconds, does 0 damage.

If absorb: check element toggle, line trace with element type. Gain 3 heat. ROF 2/sec.

On hit: If element matches enemy weakness type, hit does 2 damage. Player gains 1% life and 2% ammo.

Else: nothing.

If element heat value reaches 100 after this shot, element burns out, tagging that element with a 10 second cooldown. During that cooldown, that element will not allow shots to be fired. At the end of the cooldown, the element’s heat is set to 0.

Enemy:

Mantis moves and attacks 2x speed (needs testing) of Troll. Squid moves at Mantis speed, but stops at max range.

Mantis does 8% damage per hit, ROF 1/sec. Mantis has 15 HP.

Troll does 20% damage per hit, ROF 1 every 2 sec. Troll has 25 HP.

Squid does 12% damage per hit, ROF 1/sec. Projectile speed is ½ player projectile speed, to give player a chance to run/dodge. Squid has 20 HP.

Killing Mantis requires 3 projectile hits (-15 ammo, +12 heat) or 8 absorb hits (+16 ammo, +8 life, +24 heat).

Killing Troll requires 5 projectile hits (-25 ammo, +20 heat) or 13 absorb hits (+26 ammo, +13 life, +39 heat).

Killing Squid requires 4 projectile hits (-20 ammo, +16 heat) or 10 absorb hits (+20 ammo, +10 life, +30 heat).

Assuming perfect accuracy:

Projectiles hit harder, spend ammo, stop life loss, and gain heat slowly.

At full ROF, a full 100% ammo tank will take 20 shots/seconds to empty, 25 shots/seconds to burn out an element. Burning out the tank will kill 7 mantises, 4 trolls, or 5 squids.

Imperfect accuracy wastes ammo, heats element, and may heal enemies if hit with their own element.

Absorb lines deal less damage, gain ammo/life, and gain heat quickly.

At full ROF, filling a tank from 0 to 100% will take 50 shots/25 seconds, gain 50 hp, and generate 150 heat, enough to burn out a crystal and half of another one. This will also kill 7 mantises, 4 trolls, or 5 squids.

Burning out a crystal from 0 to 100% heat will take 34 hits/17 seconds, gain 68 ammo and 34 hp. This will kill 4 mantises, 2 trolls, or 3 squids.

Imperfect accuracy only heats element without gaining anything.

Maintaining this perfect accuracy and switching perfectly from absorb to project between enemy kills breaks even on ammo, and requires a cycle of about 8-10 seconds to completely cool a single crystal back to 0. Even switching crystals will fairly quickly build up heat as enemy numbers increase. Heat on the crystals, then, is one of the two major threats; burned out crystals lead to being overwhelmed by enemies. Individual enemies are not a great danger; being mobbed by twenty fire mantises on one side and nine water trolls on the other side with eight air squids shooting at you is when you’re screwed.

For reference, throughout this description I’m planning on each wave taking about 15 seconds to spawn.

In early/tutorial area (large open space):

Base waves spawn enough mobs to kill player if each only hits once, so 13 mantises, 5 trolls, or 9 squids. Next wave should begin far enough away to be easily seen before reaching player, spawning its first mob on the same tick as the last mob of the current wave.

Waves cycle fire>earth>air>water. First cycle will be trolls. Second cycle will be mantises. Third cycle will be squids. After last enemy of third cycle dies, gate opens with noise and visuals, and if possible player camera turns to directly face gate. Then, enemies start spawning at the opposite end of the map, in an endless flood, driving the player through the gate, which closes behind him.

In second room:

Waves spawn at the same rate, but with randomized types and elements. At this point, the enemies should still be spawning at visible spawn points. After a set number of waves (maybe every 6 or so), the number of seconds of overlap increases by one, added at the beginning. Thus, the first increase will make it so that the first two seconds of the next wave spawn at the same time as the last two of the current wave. Fairly quickly, this will have random mobs spawning from both sides of the room at the same time. When the fourth increase would hit, the gate to the third room will open instead. As before, an unending stream of enemies will drive players into the next room.

In third/final room:

In this room, the spawn points should be obscured from view. To do this, the spawning script should try to choose the spawn furthest away from the player. He shouldn’t be able to see it, so his first warning of the next wave beginning will be when he sees the enemies closing on him. As before, the enemy types and elements will be randomized; however, in this room, the number of enemies per wave will also be randomized, in a range from the base wave (5 trolls, 9 squids, 13 mantises) to half again that (8 trolls, 14 squids, 20 mantises). These waves will overlap 5 seconds. After 10 waves, individual enemies in each wave will have their type (squid/mantis/troll) randomized. After 20 waves, the individual enemies will also have their element randomized. After 30 waves, two waves will spawn at the same time, at the furthest spawn point and a randomly chosen one. After 40 waves, each following wave will increment their range by one (5-8 trolls become 6-9, etc.). Soon enough, this will have the map filling from two sides with any of the 12 random type/element combinations before the player can burn down the waves he is currently fighting; at that point, it’s only a matter of time.

Based on what I’ve already heard, we already have enemy AI working. It’s not terribly complex – run directly at PC and try to kill him – and we don’t need more complexity. They hate that dude, after all.

I figure, based on that estimate, that we will probably have the ability to demonstrate a wave of spawns on Thursday (10/13). I’d like to think that we could have the weapon working to the specs above by next Tuesday (10/18), or maybe Thursday (10/20). After that, I think we could allow a couple of weeks (from Thursday, this would be Thursday, 11/3) to get the wave scripting – which, no matter how you look at it, will be a pain in the ass – working to some degree. Art should have gone over particle effects by that point and provide some direction; until then, holpefully we can just layer a flat color or a flag or something over the generic mob model to denote element for weapon testing.

Something like this:

