Crusaders of Light: Dark Dimensions
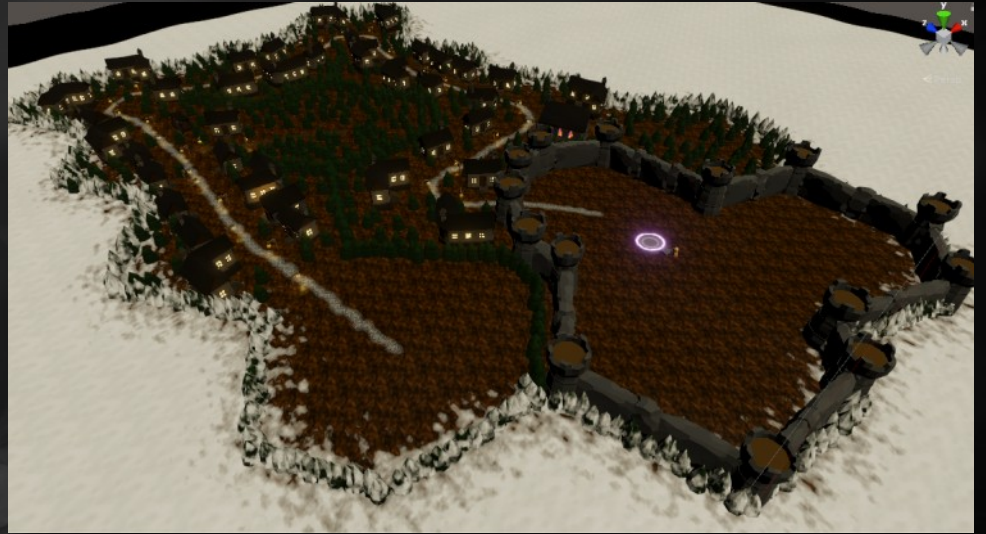
ALPHA REPORT

Andreas Leitner
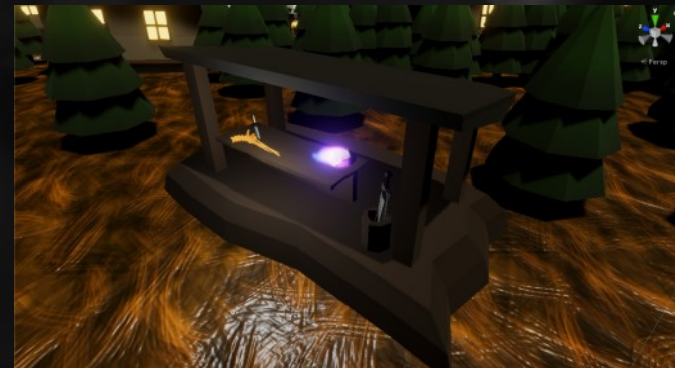
Florian Buschek

Jean Paul Vieira Filho

Level Generation

- Village generation for the main road is ready
- Only missing feature:
  - Special area generation -> will be implemented before the playtesting
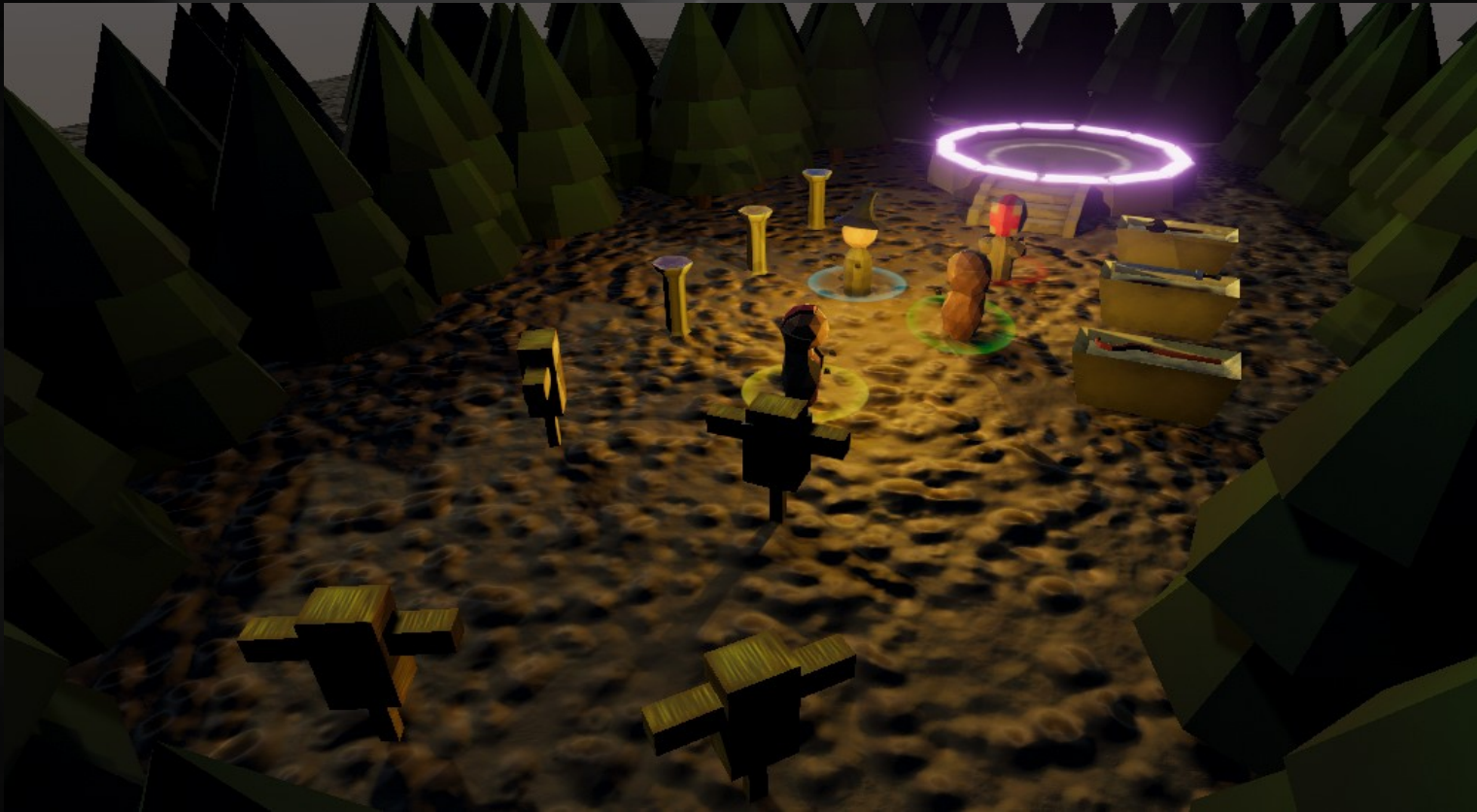
- Many different models (but just 2 generic houses ¯_(ツ)_/¯)

Level Generation

Level Generation

Transition Area

Swarm AI: Rules

- **Cohesion:**   Move closer to neighbours center position
- **Seperation:**   Avoid moving into each other
- **Alignment:**   Match moving direction of neighbours
- **Player Attraction:**   Move towards players
- **Danger Avoidance:**   Move away from danger
- **Stay-Relevant:**   Move towards rough area of players, otherwise die
- **Attack:**   Attack if in range
- *(Spike Enemy):*   Move towards the border of the swarm
- *(Winged Enemy):*   Keep distance from player (has min. Attack range)

Swarm AI: Optimization

- Optimized Swarm to allow as many as possible
- Expensive Neighbour lookup frequency and size scaled on likelyhood of big changes
- General code optimizations
  - No unnecessary calculations, reuse data, ...
- Looked into relatively new Unity Jobs System for Multithreading

  -> gave ultimatley no real improvements

  -> decided against
- Preserved intended swarm behaviour as much as possible

Enemies: Swarm

- 3 Basic Swarm Enemies:
  - Standard:
    - Bites the player.
  - Spike:
    - More resilient
    - Tries to protect others by going to the border of the swarm
    - Extends spikes to attack
  - Winged:
    - Less resilient
    - Stays away from players due to minimum attack range
    - Powerful jump/fly attack -> explodes on player contact

Enemies: Bosses

- 2 Bosses:
  - Golem:
    - *Tough melee fighter, gains ice abilities when under 50% health*
  - Fire Wizard:
    - *Cast lots of area effects*
- 2 Mini Bosses:
  - Ice Wizard:
    - *Can slow the player, making it easier for the bugs to attack*
  - Skull:
    - *Can make bugs explode in lightning to damage players*
    - *Can spawn new, special, powerful Lighning Bugs, that survive the explosions*

Combat: Combo System

- 3 new Weapons: Sword, Staff, Mace
- Each has a combo tree to do different moves:
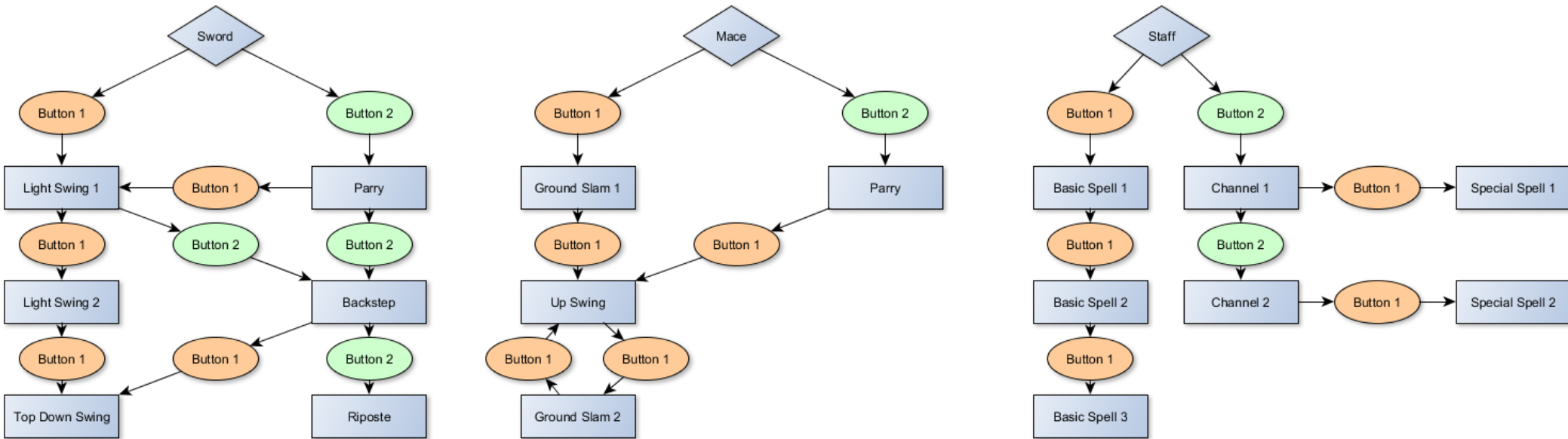
Combat: Elements

- 3 Elements: Fire, Ice, Lightning/Shock
- Each weapon attack adds effects based on equipped element
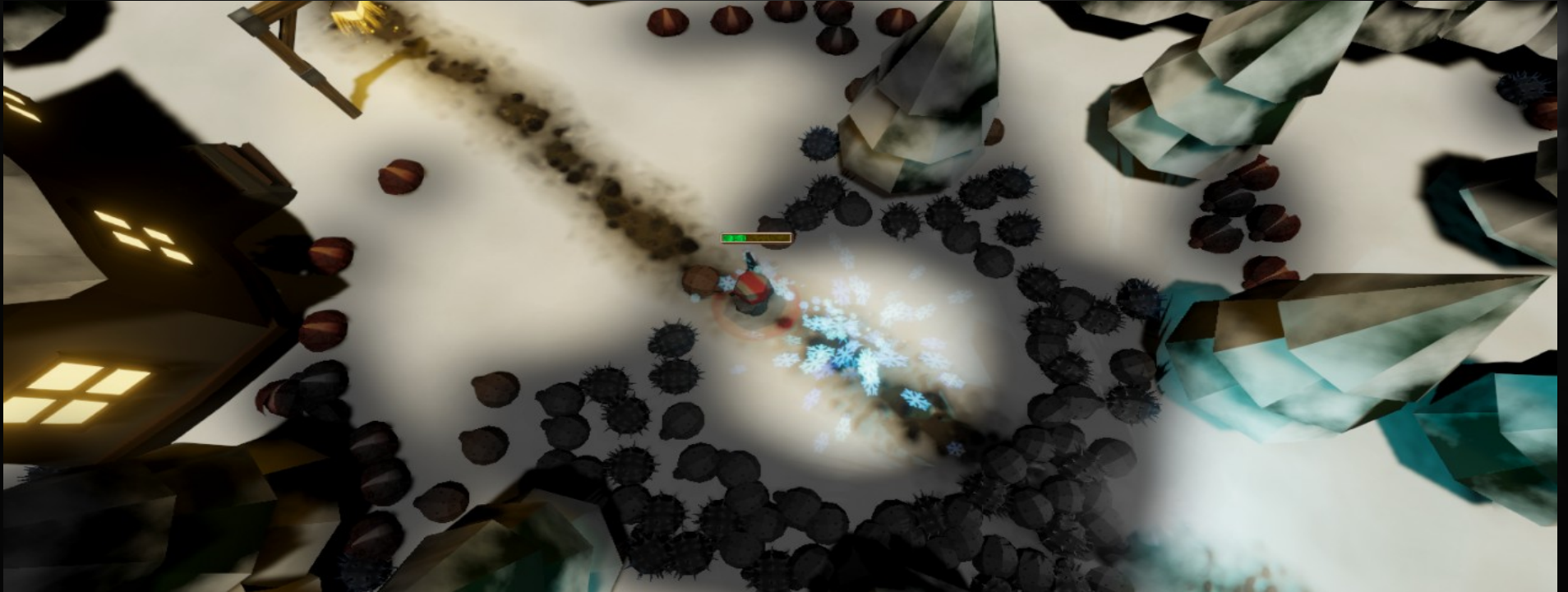
Combat: Heal and Revive

Players can activate the Wisp they are escorting:

- Heal
  - Heals all players in range
- Revive
  - Revives a dead player
  - Takes a while to activate

- Both have a cooldown time until they can be used again

Visual Changes

- Snow Shader

- Darkness effect (post processing)

Task completion

	Functional Minimum	Low Target	Desired Target	High Target
Andreas	3d Assets: - 3 new basic Enemies Particle System: - Implemented custom GPU particles, but replaced them With unity's particle system. - Particle effect themselves finished: - 5 different particle effect types for the 3 elements - Wisp particle effect - Skull glowing eye effect - Ambient effect for lantern	Triplanar shader: - Triplanar snow shader for static objects - terrain shader with height blending (but not triplanar) - Transition scene and its assets - New terrain textures - 3 new bosses / minibosses	**Level Settings not fully done yet:** - fine tuning of terrain settings - fine tuning of post processing GPU terrain generation: - Implemented GPU smoothing - **used for height smooth but not yet for weights**	Dark effect around enemies: - Working as post processing fragment shader →performance not the best with to many enemies - **Not yet working as PP compute shader** →**basically no documentation from unity for this**
Florian	AI: - Enemies with new Swarm Behavior - 3 Basic Rules: Cohesion, Separation, Alignment - Advanced Rules: - Attraction (towards Player) - Danger Avoidance Navigation: - Characters now use the Unity NavMesh System for Navigation/Movement Content: - 3 basic Enemies using the Swarm Behavior (Skills, Behavior, Animations, etc...)	AI: - Advanced Rule: Defensive Enemies form outer ring around swarm Combat System Rework: - New Equipment Type: Elements - Combos: Activate different skills based on the previously activated skill - Elements can add new skill effects to skills at runtime - Light Orb Mechanics: Activate to heal or revive players - (Changing code from last semester to allow integration of the new features Content: - 3 new Weapons, each with its own Skill/Combo Set - 3 (new) Elements, each with its own Skill Modifications (The old Weapons and Skills should be replaced with the new ones)	Enemy Placement: - New enemy spawner AI: - Optimization of Swarm Behavior for smooth framerate with lots of enemies (hundreds) Content: - Bosses (Skills, Behavior, Animations, etc...)	**AI:** - **Advanced Rules: More rules for the individual enemy types and bosses that change rules** **Combat System Rework:** - **Resource System: Skills cost Stamina to activate** **Content:** - **more enemies, bosses, weapons, skills, elements, etc...**
Jean	Level Generation – Restructure of Pipeline: - Pattern matching algorithm and graph class extension - Story Structure level parameters definition and level graph creation - Terrain Structure heightmap generation and information extraction - Scenery Structure based on areas and pattern matching - NavMesh generation Intense bugfixing and refactoring from last semester	Level Generation – Minor Features: - Curved paths - Orient prefabs to terrain normal + angle limitation Gameplay mechanics: - Player spawning in level - Light orb movement mechanics	General mechanics: - Teleportation from level to transition area, then to new level Level Generation: - Boss area placement logic - Forest areas placement logic - Chest area placement logic Level assets: - 3D models for Forest Biome	**Level Generation:** - **Egypt 3D models** - **Boss and Chest area diverse filling** **Player Rewards:** - **Earn and choose weapons during gameplay** **SFX**