

# *Final Phase Report: Completion and Polishing of Elemental Planets*

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**Abstract—** The Elemental Planets project is a single-player RPG that takes players on an elemental adventure to explore four distinct realms—Earth, Water, Fire, and Air. Each realm presents unique challenges, quests, and boss battles tied to its respective elemental theme. The game aims to provide an engaging mix of combat, puzzles, and narrative depth. This report details the achievements of the Final Phase, where the game was brought to near-completion with polished mechanics, expanded environments, and an endgame epilogue summarizing the player’s journey.

## I. INTRODUCTION

### A. Background and Context

*The **Elemental Planets** project was conceptualized as an adventure RPG inspired by games like Hades and The Legend of Zelda, with storytelling elements akin to Avatar: The Last Airbender. The player assumes the role of Dr. Bumi Wan, a skilled elemental bender, on a journey to master the elements and restore harmony to the universe.*

- **Core Themes:**

- *Exploration of four unique realms based on Earth, Water, Fire, and Air.*
- *Thematic integration of elemental mechanics with puzzles, combat, and environment design.*
- *A strong narrative focus conveyed through NPC dialogue and quest progression.*

### B. Objectives of the Final Phase

The Final Phase aimed to bring the project to completion by addressing the following objectives:

1. **Complete the Water, Fire and Air Realms:**

- Develop distinct quests, enemies, and bosses for each realm.
- Ensure thematic consistency through visuals and gameplay mechanics.

2. **Polish Existing Features:**

- Refine mechanics implemented in previous phases, such as adaptive AI, procedural generation, and the teleportation system.

### 3. **Add Endgame Content:**

- Introduce a credits screen and epilogue summarizing the player's journey.
- Record a gameplay demo video for the presentation.

## C. Challenges Addressed

Throughout the Final Phase, the development team encountered several challenges:

### 1. **Adaptive AI Balancing:**

- Ensuring enemies provided a fair challenge while remaining thematically consistent.

### 2. **Procedural Generation Refinement:**

- Tailoring puzzles and environments to reflect the distinct identities of each realm.

### 3. **Endgame Integration:**

- Creating a seamless transition from gameplay to the narrative-driven conclusion.

Despite these challenges, the Final Phase succeeded in enhancing the game's core elements and delivering a polished final product.

## D. Scope of the Final Phase

The scope of this phase was defined as follows:

### 1. **Content Development:**

- Complete the remaining three realms (Water, Fire and Air).
- Create unique boss mechanics for the Fire Dragon and Air Monk.

### 2. **Narrative Design:**

- Expand NPC dialogues to enrich storytelling.
- Implement post-quest messages and a cohesive epilogue.

### 3. **Gameplay Refinements:**

- Enhance the UI and visuals for better player immersion.
- Record gameplay footage for the final demo.

## II. METHODS

## A. Overview

The methods employed during the Final Phase of the **Elemental Planets** project focused on completing the Water, Fire, and Air realms, refining gameplay mechanics, and delivering a polished final product. A structured approach ensured that the remaining content was seamlessly integrated into the existing framework while maintaining thematic consistency and gameplay balance.

## B. Development Workflow

### 1. Content Creation

- **Water Realm:**

- Designed an underwater-themed environment with serene water textures, and aquatic-themed puzzles.
- Developed quests focused on Water Crystals, Aqua Sentinels, and the Tidal Leviathan boss.

- **Fire Realm:**

- Created a volcanic environment with lava flows, and fiery hazards.
- Developed quests centered around Flame Essences, Inferno Beasts, and the Magma Dragon boss.
- Integrated fire-themed puzzles requiring precision navigation and combat.

- **Air Realm:**

- Built a sky-themed environment with floating platforms, clouds, and gusty wind obstacles.
- Developed quests involving Wind Shards, Sky Raiders, and Zephyros, the Tempest Lord.
- Enhanced navigation mechanics with jumping and platforming challenges to match the airy theme.

### 2. Gameplay Mechanics

- **Quest System Enhancements:**

- Extended the quest logic to support unique objectives in the Water, Fire, and Air realms.
- Included collectibles, enemy defeats, and boss battles as part of progression tracking.

- **Teleportation System:**

- Developed teleportation pads to transition smoothly between realms.
- Tied teleportation pad activation to quest completion logic, ensuring a cohesive flow between levels.

## C. Tools and Technologies

### 1. Unity Engine

Core Features Used:

- Cinemachine: For dynamic camera angles during boss fights and transitions.
- Post Processing: To enhance visuals for each realm.
- ProBuilder: For prototyping and designing complex environments.

### 2. Asset Integration

Leveraged Unity Asset Store packages to accelerate development:

- Dragon PBR: For Fire realm's Magma Dragon boss.
- Skybox Series Free: For realistic atmospheric effects in the Air realm.
- 3D Modern Menu UI: For a polished user interface.
- Water FX Assets: For visually immersive aquatic elements in the Water realm.

### 3. Custom Scripting

Extended and refined custom scripts for:

- NPC interactions and dialogues.
- Procedural generation for puzzles and collectibles.
- Quest and teleportation systems.

## D. Design Philosophy

### 1. Thematic Consistency

Ensured that each realm adhered to its elemental theme:

- Water: Serene and fluid, focusing on exploration and puzzles.
- Fire: Intense and aggressive, with hazardous environments.
- Air: Light and ethereal, emphasizing movement and platforming.

## 2. Player Experience

Prioritized balance between challenge and accessibility:

- Streamlined combat mechanics to maintain consistency across realms.
- Added audio-visual cues to guide players during quests and puzzles.

## 3. Iterative Testing

Conducted iterative playtesting to:

- Debug quest progression and teleportation logic.
- Optimize performance, especially particle effects and AI.

### E. Challenges Adressed

#### ☐ **AI Balancing:**

- Tuned enemy behavior across realms to ensure a fair challenge.

#### ☐ **Procedural Integration:**

- Refined procedural elements to fit seamlessly within handcrafted narratives.

#### ☐ **Final Phase Integration:**

- Managed dependencies between Water, Fire, and Air realms, including boss battles and teleportation pads.

## III. RESULTS

### A. Overview

The Final Phase of **Elemental Planets** delivered a nearly complete game with all core mechanics, quests, realms, and endgame content successfully implemented. Each realm was finalized with distinct features, unique quests, and thematic boss fights, providing a rich and immersive player experience. This section outlines the specific results achieved in the Water, Fire, and Air realms, as well as the overall enhancements to gameplay and narrative.

### B. Water Realm Completion

#### ☐ **Environment Design:**

- The Water realm featured a serene underwater aesthetic and aquatic-themed puzzles. Visual elements, such as shimmering water effects and coral formations, created an immersive environment.

#### □ **Quests and Progression:**

- Three quests were implemented:
  - **Quest 1:** Collecting Water Crystals scattered across floating platforms.
  - **Quest 2:** Defeating Aqua Sentinels with water-themed abilities.
  - **Quest 3:** Battling the Tidal Leviathan, a colossal underwater boss.
- Each quest was integrated with progression tracking and narrative-driven objectives.

#### □ **Gameplay Enhancements:**

- Introduced floating puzzles requiring platform navigation.
- Added subtle visual cues to guide players during exploration and combat.

### C. Fire Realm Completion

#### □ **Environment Design:**

- The Fire realm presented a volcanic terrain filled with molten lava, magma platforms, and dynamic hazards such as flowing lava rivers and erupting geysers.

#### □ **Quests and Progression:**

- Three quests were implemented:
  - **Quest 1:** Collecting Flame Essences amidst dangerous lava flows.
  - **Quest 2:** Defeating Inferno Beasts, fire-themed enemies with explosive abilities.
  - **Quest 3:** Facing the Magma Dragon, a towering, fire-breathing boss.
- Teleportation pads were unlocked upon completing the quests, ensuring smooth scene transitions.

#### □ **Gameplay Enhancements:**

- Integrated hazards requiring careful navigation and timing.
- Balanced combat mechanics for an engaging but fair challenge.

❑ **Notable Achievement:** Successfully conveyed the intensity and danger of the Fire realm while maintaining thematic consistency.

#### D. Air Realm Completion

❑ **Environment Design:**

- The Air realm was built with a light, ethereal aesthetic featuring floating platforms, gusty winds, and cloud-filled skies. Visual effects included drifting clouds and subtle particle effects to simulate wind currents.

❑ **Quests and Progression:**

- Three quests were implemented:
  - **Quest 1:** Collecting Wind Shards scattered across floating islands.
  - **Quest 2:** Defeating Sky Raiders, agile enemies with aerial attacks.
  - **Quest 3:** Confronting Zephyros, the Tempest Lord, a powerful wind-based boss.
- The final quest led to the endgame epilogue, summarizing the player's journey.

❑ **Gameplay Enhancements:**

- Added platforming challenges with gust mechanics that influence player movement.
- Introduced unique enemy behaviors to match the airborne theme.

❑ **Notable Achievement:** Successfully concluded the player's journey with an epic boss battle and a satisfying narrative.

#### E. Overall Enhancements

❑ **Visual and Audio Improvements:**

- Integrated post-processing effects for more immersive visuals.
- Enhanced audio feedback for quests, combat, and environment interactions.

❑ **UI Refinements:**

- Polished UI elements, including quest progress trackers, teleportation prompts, and dialogue windows.

❑ **Performance Optimization:**

- Improved asset loading and reduced memory usage, ensuring smooth gameplay across all scenes.

#### F. Completion Percentage

- ☐ **Overall Completion:** ~80%
- ☐ **Phase Breakdown:**
  - Water Realm: 80%
  - Fire Realm: 80%
  - Air Realm: 80%
  - Endgame Content: 70% (additional polish possible for post-game replayability).

#### G. Summary of Results

The Final Phase of **Elemental Planets** successfully delivered:

1. Three fully realized elemental realms (Water, Fire, Air).
2. Integrated quests, puzzles, and boss mechanics in all realms.
3. A polished endgame with a credits screen and epilogue.
4. A complete gameplay demo highlighting the game's features.

### IV. DISCUSSION OF RESULTS

The discussion of results focuses on evaluating the outcomes of the **Final Phase** of **Elemental Planets** in terms of achievements, challenges addressed, and the impact of these developments on the overall project goals. This section also highlights the strengths of the completed features and areas where improvements can be made.

#### A. Achievements and Strengths

##### 1. Completion of the Elemental Realms

- ☐ **Water Realm:**
  - The Water Realm captured its thematic identity through serene visuals and fluid gameplay mechanics. Floating puzzles and the Tidal Leviathan boss provided engaging challenges while maintaining the realm's aquatic tone.
  - **Impact:** Introduced gameplay diversity with platforming puzzles and a slower, exploration-based pace compared to the Earth Realm.



#### ❑ **Fire Realm:**

- The Fire Realm delivered intensity through hazardous terrain and dynamic combat. The Magma Dragon boss emphasized the realm's fiery theme with its challenging mechanics.
- **Impact:** Elevated player engagement by adding environmental hazards that tested timing and navigation skills.

#### ❑ **Air Realm:**

- The Air Realm concluded the player's journey with a light and ethereal atmosphere. The Zephyros boss fight tied the narrative to a satisfying conclusion, with a visually rich epilogue as a reward.
- **Impact:** Provided an emotional and thematic climax to the game, with a sense of accomplishment for the player.

### **2. Enhanced Quest and Boss Systems**

❑ The **quest system** expanded seamlessly to support diverse objectives across all realms, including collectible gathering, combat, and boss battles.

❑ **Boss fights** introduced unique challenges tailored to each elemental theme, enhancing player engagement through varied mechanics.

- Example: The Tidal Leviathan required patience and precise movement, while the Magma Dragon emphasized dynamic combat.

### **3. Narrative and UI Improvements**

❑ NPC interactions and quest dialogues enriched the storytelling experience, making each realm feel alive and purposeful.

❑ UI elements, such as quest progress tracking and teleportation prompts, provided clear guidance to players, reducing confusion during transitions.

## **B. Challenges Addressed**

### **1. Procedural Constraints**

❑ Issue: Procedurally generated maps initially lacked thematic consistency, creating disconnects between the narrative and gameplay.

- Solution: Refined puzzle logic with handcrafted adjustments tailored to each realm's theme.
- Result: Enhanced replayability while ensuring the narrative tone remained consistent across all levels.

## **2. Adaptive AI Tuning**

- Issue: Enemy AI in earlier phases was overly aggressive, leading to potential player frustration.
- Solution: Adjusted AI behavior to scale with player progression, ensuring a balanced difficulty curve.
- Result: Improved player satisfaction with combat challenges that felt fair yet engaging.

## **3. Boss Activation Logic**

- Issue: Quest progression bugs occasionally delayed boss activation, disrupting gameplay flow.
- Solution: Streamlined quest-object dependencies and improved debug logging to identify and resolve conflicts.
- Result: Seamless boss encounters triggered reliably upon completing prerequisite quests.

## **C. Limitations**

### **1. Procedural Generation**

- While procedural maps added replayability, the integration could be further improved to provide greater variety without sacrificing thematic elements.
- Example: Some puzzles in the Water and Fire realms reused similar mechanics, reducing their novelty.

### **2. AI Refinement**

- Enemy AI, while functional, could benefit from additional polishing to create more dynamic combat scenarios.
- Example: Adding reactive behaviors for bosses when the player uses elemental abilities.

### **3. Visual Consistency**

- Although the visuals were polished, some transitions between realms (e.g., teleportation pads) felt abrupt and could benefit from smoother transitions.

## **D. Impact on Project Goals**

The outcomes of the Final Phase significantly contributed to meeting the project's overall objectives:

- **Core Gameplay Features:** Fully implemented across all four realms, ensuring a cohesive and engaging player experience.
- **Narrative Depth:** Enhanced through NPC interactions, quest dialogues, and the epilogue.
- **Replayability:** Bolstered by procedurally generated puzzles and adaptive AI.
- **Completion:** The project is approximately 80% complete, with a near-final product ready for presentation and playtesting.

## E. Lessons Learned

- **Iterative Development:** Regular testing and feedback loops were essential in refining quest progression and AI behavior.
- **Thematic Design:** Consistency in visuals, puzzles, and mechanics significantly enhanced player immersion.
- **Time Management:** Allocating more time for polishing post-game features (e.g., additional quests or replayability modes) would improve the overall experience.

## F. Summary

The Final Phase of **Elemental Planets** successfully delivered on its goals, with all realms completed and key features integrated. Challenges in procedural generation and AI refinement were addressed effectively, and the game now provides a cohesive and immersive experience. Remaining limitations can be tackled in future updates to enhance replayability and visual consistency further.

# V. CONCLUSIONS AND RECOMMENDATIONS

## A. Conclusions

The **Final Phase** of the Elemental Planets project marks the culmination of a carefully planned and executed game development process. With the completion of the Fire and Air realms alongside enhancements to the Water realm, the game now offers a cohesive and engaging experience that aligns with the project's original vision.

### 1. Project Achievements

- **Completion of Four Realms:** Each realm—Earth, Water, Fire, and Air—was designed with distinct themes, gameplay mechanics, and narratives.
- **Integrated Core Features:**
  - Adaptive AI tailored to combat challenges across realms.
  - Procedurally generated puzzles that added replayability.
  - A dynamic quest system that supported diverse objectives.
- **Polished Gameplay and Visuals:** Enhancements to UI, visuals, and performance ensured an immersive and smooth gameplay experience.
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## **2. Overall Completion**

The game is approximately **80% complete**, with all major features implemented and functional. Remaining improvements, such as enhanced post-game replayability and further procedural constraints, fall beyond the current phase's scope.

### **B. Recommendations**

The following recommendations aim to enhance the game further and explore potential extensions for future development:

#### **1. Expand Post-Game Content**

- Introduce additional challenges or bonus realms for players who complete the main game.
- Add optional side quests or hidden collectibles in existing realms to encourage replayability.

#### **2. Enhance Procedural Generation**

- Refine the procedural puzzle mechanics to incorporate more variability and complexity.
- Introduce procedurally generated enemy placements and environmental hazards to keep gameplay fresh.

#### **3. Optimize AI and Boss Behavior**

- Improve enemy AI to react dynamically to player actions, such as specific elemental attacks.
- Expand boss mechanics to include phases or environmental interactions, increasing combat depth.

#### **4. Visual and Audio Improvements**

- Add more seamless transitions between realms, particularly during teleportation.
- Introduce unique background music tracks for each realm to enhance immersion further.

#### **5. Broaden Accessibility**

- Incorporate accessibility features such as customizable controls and visual/audio cues for important gameplay moments.
- Add multiple difficulty levels to cater to a wider audience.

#### **6. Explore Multiplayer Options**

- Consider adding a cooperative multiplayer mode where players can tackle puzzles and combat together, leveraging elemental synergies.

### C. Closing Thoughts

The Elemental Planets project has evolved from a conceptual idea to a nearly complete game, demonstrating robust mechanics, engaging narratives, and polished visuals. The challenges encountered during development were effectively addressed, leaving a solid foundation for further enhancements. With its immersive world and dynamic gameplay, **Elemental Planets** is poised to offer players a rich and memorable experience.

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