1. **Research Aim Revision**

How can player decisions dynamically influence and generate video game environment and objectives in real time?

1. **Research Pipeline**

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| ***Phase 01:* Initial Research & Setup** | ***Phase 02:* Data Acquisition** | ***Phase 03:* Experimentation** | ***Phase 04:* Evaluation** | ***Phase 05:* Improvements** |
| Define the research focus. | Define Player Profiles e.g. Explorer, Warrior. | Set up basic adaptive environment logic and DDA controller. | Analyze player decision logs. | Explore enhancements, Light weight LLM m models, smarter behavior |
| Study Literature on Research Focus. | Analyze how player choices could influence quests, environment etc.… | Implement basic FSM/Behavior tree-based NPC reactions. | Review decision to outcome mapping consistency. | Implement more refined player profiles, more diverse quest generation etc. |
| Set up a unity project. | Identify quest patterns to player profiles. | Implement basic adaptive quest generation. | Conduct informal playtests (is gameplayer more dynamic). | Future upgrades like large-scale NPC memory systems. |
| Prepare Tools for Unity Project. | Prepare dialogue and environment variation rules. | Implement simple player decision logs | Gather feedback. |  |
|  |  | Test real time reactions. | Identify unbalanced quest difficulty, latency etc. |  |

1. **Research Method Explanation**

Proposed Research Methods

To evaluate the Unity prototype, a mixed-method approach will be used:

* ***Gameplay Logging:*** Automatically record player decisions, quest generation, and environment changes.
* ***Simulated Behavior Testing:*** Use predefined player profiles to test dynamic responses.
* ***User Feedback:*** Collect qualitative feedback through playtesting and short interviews.
* **Quantitative Metrics:** Measure quest diversity, system responsiveness, and replayability.

This approach balances system performance analysis with player experience evaluation, aligning with methods used in the reviewed literature.