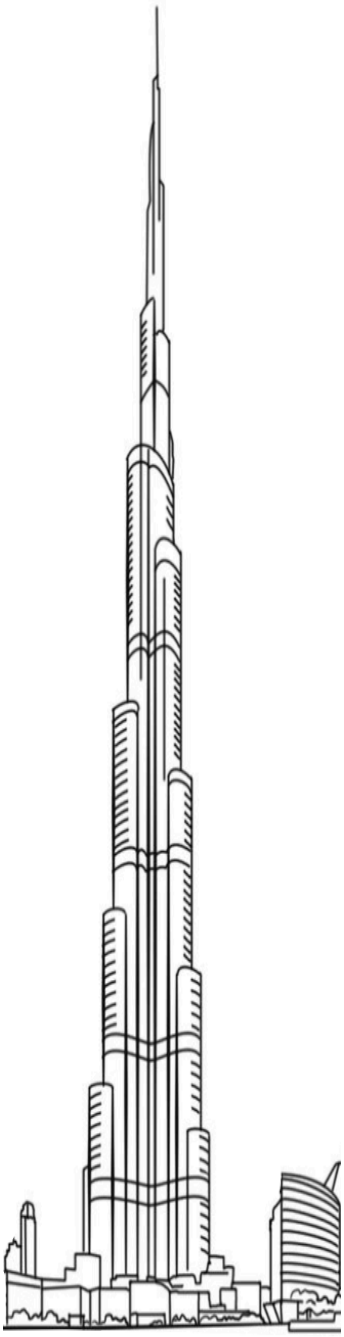
ASCEND ESPORTS

The Time Traveler: Burj Khalifa

An Educational Construction Adventure through the Historical Time-travel and Interactive Storytelling of the World's Tallest Tower, developed using Unreal Editor for Fortnite (UEFN).



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Pre - Game Design Document

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Document Version Control

Purpose: To track the history of updates, additions, and structural changes to the Game Design Document.

Version	Date	Edited by	Changes / Notes
1.0	December 2025	Hemanth Krishna, Dr Pradeep	Initial GDD Release / Baseline concept and level flow.
2.0	March 4, 2026	Hemanth Krishna, Dr Pradeep	Major overhaul: Replaced portal transitions with the interactive Time Tunnel mechanic. Integrated new NPC conversation scripts (Dr. Ayaan, Kareem, Architect, Engineer). Refined educational Fact Stations UI flow.
3.0	April 27, 2026	Hemanth Krishna, Dr Pradeep	Pre-final version of this basic GDD
4.0	June 9, 2026	Dr ISN Pradeep, Hemanth Krishna	Final Documents at EDC portal
All Versions		Dr ISN Pradeep	Conceptual changes & Completion of this basic GDD

Executive Summary

What the Game Is

The Time Traveler: Burj Khalifa is an interactive educational adventure and puzzle game. It transforms the epic story of the world's tallest building into a hands-on, historical journey.

Target Audience:
School Children, Parents, Teachers, College Students across the globe.

Platform: Fortnite Creative (UEFN).

Core Concept: Players journey through the history of the Burj Khalifa's construction by utilizing an interactive "Time Tunnel". Guided by Dr. Ayaan (a timeline expert) and Kareem (the on-site foreman), players teleport to key eras: 2002, 2004, 2007, and 2010. Under the strict rule of "No knowledge... no portal," players must absorb crucial historical facts in the tunnel before the gate opens to a specific year. Once on-site, they must complete hands-on mini-games, answer quizzes, and solve puzzles alongside historical workers to progress.

Educational Value The game is explicitly designed to teach Dubai's history, monumental engineering achievements, and the importance of teamwork and safety. By reading focused Fact Stations in the Time Tunnel and directly applying that knowledge to on-site tasks (such as managing concrete pours or installing safety nets), players gain a practical, engaging understanding of real-world architectural concepts.

Unique Selling Points

- **The Time Tunnel:** A unique gateway that enforces learning before playing, requiring players to read three distinct Fact Stations per era to unlock the timeline.

- **Live Construction Site Simulation:** Faithfully recreates distinct phases of the Burj Khalifa's construction, shifting the environment from an empty 2002

blueprint phase to a chaotic 50-meter deep foundation pit in 2004, and a high-altitude structure phase in 2007.

- **Active UEFN Mechanics:** Seamlessly blends educational quizzes with core Fortnite Creative gameplay, including parkour, drone scanning, and interactive UI panels.

Game Overview

Core Idea

Burj Time Traveler is an immersive educational journey that transports players back in time to experience the monumental construction of the Burj Khalifa firsthand. Guided by a timeline expert, Dr. Ayaan, and the on-site foreman, Kareem, players must learn crucial architectural and historical facts to unlock time portals. Once on the construction site, they actively participate in the building process through interactive tasks and puzzles.

Genre: Educational Adventure, Narrative Exploration, Puzzle.

Platform Fortnite Creative (UEFN).

Player Mode: Single Player. Upon spawning in the Lobby, the player can choose between two distinct experiences:

- **Interactive Mode:** The full gameplay loop featuring narrative dialogue, mini-games, quizzes, and tasks.
- **Exploration Mode:** A streamlined mode focused on walking through the Time Tunnels, reading the Fact Stations, and exploring the historical environments at their own pace.

Core Pillars

1. **Knowledge as the Key:** The game operates on Dr. Ayaan's strict rule: *"No knowledge... no portal"*. Players are required to read and digest three specific Fact Stations in the Time Tunnel before the gate to the next era opens.

2. **Interactive Learning:** Education is achieved through active participation. Instead of just reading about construction, players physically engage with it—such as delivering gravel, turning valves to pour concrete, or installing safety nets on high-altitude edges.
3. **Immersive Scale & Atmosphere:** The game meticulously recreates the staggering scale of the Burj Khalifa project. Players experience the depth of the 50-meter foundation pit in 2004, the vertigo of the open edges in 2007, and the awe of the completed 828-meter tower in 2010.
4. **Character Driven Narrative:** The monumental engineering facts are grounded in relatable, human interactions. Engaging NPCs like Kareem the foreman, Samira the architect, and Omar the engineer give the player purpose, provide context, and make the historical site feel alive.

Target Audience

Primary Audience

- **Students (Ages 10–18):** Specifically targeting primary school children in Dubai, scaling up to middle and high school students who benefit from interactive history and physics lessons.
- **STEM Learners:** Young players interested in science, technology, engineering, and mathematics, eager to understand how a 50-meter deep foundation and a Y-shaped footprint keep the world's tallest building standing.
- **Fortnite Players:** The massive existing player base is familiar with UEFN mechanics, looking for fresh, non-combat puzzle and parkour experiences.

Secondary & Broader Audience

- **Educational Institutions:** Teachers and schools seeking engaging, interactive classroom modules. The game features accessibility options and potential analytics designed specifically for classroom oversight.

- **Architecture Enthusiasts:** Players fascinated by structural design, massive concrete pours, and the step-by-step methodology of mega-construction projects.
- **Casual Gamers:** Users seeking a relaxed, narrative-driven exploration mode without the pressure of competitive gameplay.

Game World & Setting

Location and Historical Timeframe The game is set entirely within Downtown Dubai, focusing specifically on the footprint and ascending structure of the Burj Khalifa. The narrative spans an eight-year historical timeframe, taking the player from the project's initial vision in 2002 all the way to its grand opening in 2010.

The Time Travel Concept Players do not simply walk between levels; they traverse the "Time Tunnel," a futuristic hub acting as a physical timeline. Overseen by timeline expert Dr. Ayaan, the Time Tunnel enforces a strict narrative and gameplay rule: *"No knowledge... no portal"*. Players must interact with and read specific educational Fact Stations about the upcoming era before the timeline allows them to teleport forward.

Construction Environments & World Evolution

The game world dramatically shifts between levels to accurately reflect the chronological phases of the mega-project's construction:

- **Level 1: 2002 (The Blueprint Phase):** The world begins as a ground-level construction spawn point. The environment is relatively flat and barren, populated only by scattered rocks, a central blueprint table, giant industrial pipes, and a towering crane. It represents the quiet before the massive build.
- **Level 2: 2004 (The Foundation Phase):** The environment transitions from a flat surface to a massive, chaotic excavation site. The player is dropped into a foundation pit over 50 meters deep, carved into the desert bedrock. The area is filled with concrete mixers, scattered tools, active forklifts, and cranes.
- **Level 3: 2007 (The Structure Phase):** The setting undergoes a radical vertical shift. The player is now situated on a high-altitude construction floor.

The world feels precarious and vast, featuring exposed structural edges, operational construction elevators moving between floors, and a drone helipad. It emphasizes the staggering height records being broken at this stage.

- **Level 4: 2010 (The Completion Phase):** The final environment is a polished, fully realized Downtown Dubai at night. The construction chaos is gone, replaced by the completed 828-meter Burj Khalifa. The player views the monumental structure from a water dock/viewpoint, surrounded by a massive fountain system and a starlit sky, ready for the opening ceremony

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Narrative & Story

Premise

The player is assigned a mission to study the engineering and history of the Burj Khalifa firsthand. To achieve this, the player uses a time machine to travel back to key points in the tower's construction. However, time travel requires knowledge; the player must prove they understand the historical context of a specific year before the timeline allows them to enter it.

Narrative Structure

The game's narrative follows a strict, sequential loop that alternates between learning and doing:

- **Lobby:** The player chooses between Interactive or Exploration mode.
- **Time Tunnel 1:** Conversation with Dr. Ayaan and reading 3 facts about the 2002 vision.
- **Level 1 (2002):** The player helps on-site workers locate missing blueprints.
- **Time Tunnel 2:** Reading 3 facts about the deep foundations.
- **Level 2 (2004):** The player assists with concrete pouring and site management.
- **Time Tunnel 3:** Reading 3 facts about the structural rise and safety.
- **Level 3 (2007):** The player manages logistics and safety nets on the upper floors.

- **Time Tunnel 4:** Reading 3 facts about the project's completion and vision.
- **Level 4 (End):** The player triggers the opening light and water show in 2010.

Key Characters

- **Dr. Ayaan:** The intelligent and calm guide stationed within the Time Tunnel. He acts as the timeline expert, enforcing the rule that players must learn about the era before the portal opens.
- **Kareem (The Foreman):** The primary on-site contact and quest giver. He appears in every era to welcome the player, explain the current state of construction, and direct them toward workers who need help.
- **The Architect:** The knowledgeable, slightly playful lead architect found in 2002. She tests the player's knowledge of the tower's original designers (SOM) before handing over a blueprint piece.
- **The Engineer:** The strict but kind-hearted structural engineer in 2002. He emphasizes that safety is the most important part of engineering and quizzes the player on the purpose of planning.
- **Ali (Worker 1 - 2004):** A construction worker managing the concrete mixers during the foundation phase. He tasks the player with gathering gravel and turning valves for the massive pour.
- **Safety Inspector (2007):** A firm and stressed inspector on the high-altitude floors who halts all work until the player installs mandatory safety nets along the exposed edges.

Core Gameplay

Player Objectives The primary goal of *Burj Time Traveler* is to progress through the chronological timeline of the Burj Khalifa's creation by blending education with active UEFN gameplay mechanics. To succeed, players must:

- **Learn Historical Facts:** Read and absorb key engineering and historical details presented at Fact Stations inside the Time Tunnel.
- **Study Construction Phases:** Experience the site's evolution firsthand, from the 2002 blueprint phase to the 2010 completion ceremony.

- **Complete Interactive Tasks:** Assist on-site NPCs by performing mini-games, puzzles, and logistics management (e.g., flying drones and completing parkour climbs).
- **Answer Educational Quizzes:** Prove knowledge of the building's history and engineering principles to earn critical items.
- **Activate Portals:** Fulfill all era-specific objectives to trigger cinematic transitions and open the gateway to the next historical stage.

Core Gameplay Loop

The game relies on a structured, repeating cycle that seamlessly bridges learning and doing.

1. **Mode Selection (The Lobby):** The player spawns in the Lobby and chooses either the "Interactive Mode" (full gameplay) or "Exploration Mode" (streamlined tour).
2. **The Knowledge Gate (Time Tunnel):**
    - The player teleports into the Time Tunnel and converses with timeline expert Dr. Ayaan.
    - The player must interact with and read three distinct Fact Stations related to the upcoming era.
    - Once all three facts are read, the Tunnel Gate opens, granting access to the specific year.
3. **Site Orientation (Level Entry):** * The player arrives in the historical era and is greeted by Kareem the Foreman, who provides context for the current phase (e.g., laying foundations or building high-rise floors).
    - Kareem assigns the overarching objective (e.g., "Explore the Site and Help the Workers").
4. **Active Assistance (Task Execution):** The player explores the site, locates workers with markers, and completes a series of varied tasks to advance the construction. These tasks utilize diverse UEFN mechanics:
    - **Gathering & Smashing:** Using a hammer to destroy rocks and find hidden items, or gathering scattered tools for site cleanup.
    - **Dialogue & Quizzes:** Engaging with specialized NPCs (Architect, Engineer) and using UI interfaces to select correct answers based on historical facts.

    - **Logistics & Vehicles:** moving pallets of gravel, or managing a construction elevator to deliver paint and pipes between floors.
    - **Puzzles & Navigation:** Balancing voltage meters on cranes, completing crane-tower parkour sequences, or flying a drone through checkpoints to scan beams.
5. **Progression & Transition:** Once all era-specific worker tasks are successfully completed, a cinematic sequence plays, and the portal to the next Time Tunnel opens, repeating the cycle for the subsequent era.

Game Mechanics

This section outlines the core systems that govern how players interact with the world, complete objectives, and progress through the timeline.

Interaction Systems

The game relies on three primary methods of interaction to blend education with active gameplay:

- **Fact Stations:** Located exclusively within the Time Tunnels. Each tunnel contains three focused fact panels featuring an image and bullet points regarding the upcoming era . The player must physically interact with and read all three facts to trigger the next phase.
- **NPC Conversations:** Players interact with historical figures and site workers through interactive text dialogue. The system uses multiple-choice dialogue options, allowing players to ask questions or offer help . Certain NPCs, like the Architect and Engineer, utilize a custom Quiz Interface where the player must select the correct historical or safety fact to proceed .
- **Buttons & Devices:** The environment is filled with interactable UEFN devices. Players must physically interact with objects such as turning four main pipe valves to pour concrete , engaging with control panels to balance crane voltage , activating clamps to secure safety nets , and using a master console to trigger the final fireworks and fountain show.

Task Systems

Once on the construction site, the player engages in various hands-on gameplay mechanics to assist the workers:

- **Collection & Gathering:** Players use tools, such as a hammer given by Kareem, to smash specific rocks and collect hidden blueprint pieces. Additionally, players must hunt for lost items, such as finding 10 scattered tools in the sand and returning them to the warehouse rack for site cleanup.
- **Logistics & Transport:** Moving materials is a massive part of the mega-project.
  In later stages, players must manage a construction elevator to deliver specific materials (paint, pipes, iron, and spools) between the warehouse, the 1st floor, and the 2nd floor .
- **Inspection:** To ensure structural integrity, players utilize modern technology by placing an automated drone on a helipad and calibrating it to fly through checkpoints and scan upper beams for misalignments.
- **Construction & Engineering:** Players directly participate in building tasks, such as retrieving safety nets from the warehouse and installing them on specific anchor points along the exposed floor edges to pass safety inspections.

Progression System: Knowledge Unlocking Portals

Progression in *Burj Time Traveler* is strictly gated by learning and task completion.

- **The Knowledge Gate:** Enforced by Dr. Ayaan, the core rule of the game is: "Time does not allow ignorance... No knowledge... no portal" . The Tunnel Gate to the next historical era will only open after the player has finished reading all three educational Fact Stations in the current tunnel.
- **Era Completion:** Once inside a specific year, the portal to the next Time Tunnel is only unlocked after the player successfully completes all specific "Worker Tasks" assigned in that current era.

Level Design

This section outlines the specific environments, objectives, and educational takeaways for each chronological phase of the game.

Level 1 – The Blueprint Phase (2002)

- **Level Theme:** The beginning of the vision and the planning stage.
- **Environment:** A ground-level construction site spawn point featuring scattered rocks, an architect's blueprint table, giant pipes, and a crane tower.

- **Gameplay Objectives:**
  - Smash 2 rocks with a hammer to find the first hidden blueprint piece.
  - Answer the Architect's quiz correctly to earn the second blueprint piece.
  - Move a giant pipe to reveal the third blueprint piece.
  - Answer the Engineer's challenge regarding structural planning to earn the fourth piece.
  - Complete a parkour sequence up the crane tower to retrieve the final blueprint piece .
- **Educational Focus:** The history of the original design by Skidmore, Owings & Merrill (SOM) and the critical importance of safety and planning before building.

Level 2 – The Foundation Phase (2004)

- **Level Theme:** Building below the surface.
- **Environment:** A chaotic, 50-meter deep foundation pit carved into desert bedrock, featuring concrete mixers, a warehouse, scattered tools, and towering cranes.
- **Gameplay Objectives:**
  - **Concrete Prep:** transport 3 pallets of gravel to the mixer, then locate and turn 4 main pipe valves to pour concrete into the pit.
  - **Site Cleanup:** Find and collect 10 scattered tools in the sand and return them to the warehouse rack.

    - **Voltage Stabilization:** Visit 3 cranes and interact with their control panels to balance the voltage gauges in the green.
- **Educational Focus:** Understanding foundation depth (50 meters), site safety principles (a tidy site prevents accidents), and the massive scale of materials used (concrete equivalent to 18 Olympic pools and 36 simultaneous cranes).

Level 3 – The Structure Phase (2007)

- **Level Theme:** Reaching the sky.
- **Environment:** A high-altitude construction floor with exposed open edges, a drone station, and operational material elevators.

- **Gameplay Objectives:**
    - **Safety Installation:** Retrieve safety nets from the warehouse and install them on specific anchor points along the unsecured floor edges.
    - **Material Logistics:** Use the elevator to transport materials across floors: deliver paint to the 1st floor, retrieve pipes for the 2nd floor, deliver iron to the 1st floor, and retrieve spools for the 2nd floor.
    - **Drone Inspection:** Place a drone on the helipad and calibrate it to automatically fly and scan the upper beams for misalignments.
- **Educational Focus:** The logistics of rapid vertical rise (completing one floor every 3 days at the peak), mandatory height-specific safety procedures, and the use of modern technology in construction.

Level 4 – The Completion Phase (2010)

- **Level Theme:** Celebrating a global icon.
- **Environment:** The completed 828-meter Burj Khalifa surrounded by a night city, crowds, and a water dock viewpoint.
- **Gameplay Objectives:**
    - Take a boat across the water to reach the optimal viewpoint.
    - Use the master console to trigger the grand opening sequence, activating the light show, fireworks, and fountain system.
    - Complete a final rapid-fire quiz reviewing facts learned throughout the game.

- **Educational Focus:** Experiencing the opening ceremony, reviewing core historical facts, and learning about the massive fountain system that shoots water over 140 meters high.

Time Tunnel System

This section details the custom "Time Tunnel" feature, which serves as the core educational gating mechanism and narrative bridge between construction eras.

Purpose The Time Tunnel acts as a physical timeline of the Burj Khalifa's history. Its primary purpose is to ensure players digest key historical and engineering facts before they engage with the active construction site gameplay.

Knowledge Gates The system is built around a strict "Knowledge Gate" philosophy overseen by the NPC Dr. Ayaan. He enforces the fundamental rule of the timeline: "Time does not allow ignorance. You must understand the year before you enter it. No knowledge... no portal". This prevents players from rushing through the educational content.

Fact Stations

Instead of overwhelming the player with text, the information is segmented into focused UI panels.

- Each Time Tunnel segment contains exactly three Fact Stations.
- Every station features a thematic image (such as an early Downtown Dubai render or an underground cross-section) paired with concise, easily readable bullet points.

Portal Activation Logic

Progression is hard-coded to player interaction within the tunnel.

- The player must approach and read all three Fact Stations in the current tunnel.

- Only after the player has finished reading all three facts will the Tunnel Gate open.
- Once the gate opens, the player steps through to teleport to the active construction year (2002, 2004, 2007, or 2010).

Structure

The Time Tunnel system creates a consistent pacing structure throughout the entire game:

- **Lobby:** The player chooses Interactive or Exploration mode and teleports to Tunnel Part 1.
- **Tunnel Part 1:** The player converses with Dr. Ayaan, reads 3 facts about the 2002 vision, and enters Level 1.
- **Tunnel Part 2:** The player reads 3 facts regarding deep foundations and enters Level 2.
- **Tunnel Part 3:** The player reads 3 facts about the structural rise and wind engineering, then enters Level 3.
- **Tunnel Part 4:** The player reads 3 facts detailing the completion and visionary leadership, then enters Level 4.

Educational Content

This section outlines the pedagogical foundation of the game, detailing the specific historical and scientific concepts players will absorb during their playtime.

Learning Goals The primary learning goals of the game are to teach Dubai's history, structural engineering principles, and the importance of teamwork through interactive tasks. By embedding these concepts into the core gameplay loop, the game transforms passive historical facts into active learning experiences.

Key Engineering Topics

The curriculum of the game is divided across the following major engineering and historical pillars:

- **Architectural Design:** Players learn about the original creators, Skidmore, Owings & Merrill (SOM), including lead architect Adrian Smith and structural engineer Bill Baker. The game highlights design inspirations, such as the Hymenocallis desert flower , and the functional purpose of the Y-shaped footprint.
- **Foundation Engineering:** The game teaches the scale of the base, revealing that foundations go over 50 meters deep into the desert bedrock and are heavily reinforced with steel. Players learn about the challenges of the massive 330,000 cubic meter concrete pour, which had to be done mostly at night because heat management was critical.
- **Wind Resistance:** Educational facts explain how the Y-shaped footprint actively improves wind stability. Players discover that the tower moves slightly on purpose, engineered to bend, not break, against super-strong winds.

- **Safety Systems:** A major focus is placed on site safety, teaching players about mandatory safety barriers, strict inspection systems, and height-specific procedures required on a mega-project.
- **Construction Logistics:** The game illustrates the massive coordination required, such as 24-hour work cycles , utilizing over 36 simultaneous cranes , and achieving a rapid vertical rise of one floor every 3 days at the project's peak.

How Learning Happens Through Gameplay Learning is not separated from the game; rather, tasks directly reflect the script's educational facts. Education is delivered through a multi-tiered approach:

- **The Time Tunnels:** Before entering any active construction year, players are required to read focused UI Fact Stations, establishing a baseline of knowledge for the upcoming era.
- **Organic NPC Dialogue:** Once on-site, characters naturally weave facts into their instructions. For example, Foreman Kareem casually mentions the 50-meter foundation depth , and Ali the worker contextualizes the massive concrete pour by noting it could fill 18 Olympic pools.
- **Interactive Quizzes:** Progression is often gated by direct knowledge checks.

For instance, the Architect will not hand over a blueprint piece until the player correctly identifies SOM as the original design team.

- **Action-Based Application:** Physical tasks mirror real-world safety and engineering protocols. When a Safety Inspector halts work because the edges are unsecured, the player must physically retrieve and install safety nets before the level can progress, reinforcing the concept that safety precedes construction.

Technical Design

This section outlines the technical framework, engine, and specific devices utilized to build and execute the game's mechanics and narrative flow.

Platform and Tools used:

- The game is built entirely on Fortnite Creative using the **Unreal Editor for Fortnite**. **Unreal Engine Tools:** UEFN's advanced toolset is utilized for creating custom UI screens, specifically for the educational Fact Stations and the interactive multiple-choice quiz interfaces for characters like Samira and Omar. Verse scripting is heavily employed to handle the complex, multi-step logic required for the material logistics (elevator task) and rapid-fire final quiz.
- **Fortnite Devices & Prefabs:** The physical environments are constructed using standard Fortnite construction galleries. These prefabs efficiently build the sprawling sites, including the deep foundation pit, warehouse racks, towering cranes, and giant industrial pipes.

Systems & Devices Used

The interactive elements of the game rely on a combination of specific UEFN devices:

- **NPC Devices:** Utilized to populate the site with historical figures and workers

(e.g., Dr. Ayaan, Kareem, the Architect, and the Engineer). These devices manage the interactive text dialogue scripts that assign tasks and deliver educational facts organically .

- **Buttons & Interaction Devices:** Placed throughout the world to allow players to physically engage with the environment. Players interact with these devices to collect scattered tools , pick up blueprint pieces , open the four main concrete valves , and activate the master console for the 2010 fireworks and light show.
- **Triggers & Objective Trackers:** Hidden triggers monitor player progress, updating the child-friendly UI HUD with current objective states (e.g., "Tools Collected: 0/10"). Triggers also recognize when a player has read all three Fact Stations in a Time Tunnel to unlock the next area.
- **Teleporters:** Essential for the Time Tunnel mechanic, teleporting the player from the Lobby to the tunnel segments, and subsequently dropping them into the correct historical construction era once the knowledge gate is cleared.

- **Prop Movers & Sequencers:** Used to animate dynamic environmental elements. This includes powering the construction elevators for material transport between floors , automating the drone flight path for upper beam inspections , and running the final choreographed LED and water fountain sequences

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Game Modes

To accommodate different types of players and educational environments, *Burj Time Traveler* offers two distinct ways to experience the game. When a player first spawns in the Lobby, they must choose between the two following modes:

Story Mode (Interactive Mode)

- **Experience Type:** A fully guided, hands-on gameplay experience combining education with active tasks.
- **Target Audience:** Standard players looking for puzzles, mini-games, and a narrative-driven adventure.

- **Detailed Flow:** * The player chooses Interactive mode in the Lobby.
    - They teleport to Tunnel Part 1, converse with Dr. Ayaan, and must read all 3 facts to unlock Level 1.
    - Inside the active construction levels, the player must complete assigned worker tasks (e.g., finding blueprints, pouring concrete, installing safety nets) to progress.
    - Once a level is completed, they proceed to Tunnel Part 2 and read 3 facts to unlock Level 2.
    - This loop continues through Tunnel Part 3 to Level 3, and finally through Tunnel Part 4 to Level 4 (The End).

Exploration Mode

- **Experience Type:** A streamlined, free-roaming, museum-style educational tour.
- **Target Audience:** Casual gamers, teachers, or students who want to focus purely on the historical facts without being gated by UEFN gameplay mechanics and worker tasks.
- **Detailed Flow:**
    - The player chooses Exploration mode in the Lobby.
    - They teleport to Tunnel Part 1 and have the introductory conversation with Dr. Ayaan.
    - The player reads all 3 facts in Tunnel Part 1.
    - **Key Difference:** Instead of entering the active construction site (Level 1), the player bypasses the worker tasks and teleports directly to Tunnel Part 2.
    - The player continues this purely educational journey, reading all 3 facts in Tunnel Part 2, jumping straight to Tunnel Part 3 to read its facts, and then moving to Tunnel Part 4.
    - After reading the final facts in Tunnel Part 4, the player is teleported straight to Level 4 to experience the grand finale.

Appendix A

Fact Lists (Time Tunnel Educational Content)

This section contains the exact educational facts presented to the player inside the Time Tunnels.

Tunnel 1: Before Level 1 (2002 - Vision Phase)

- **Fact Station 1 - The Master Plan:** Planned as the centerpiece of Downtown Dubai, designed to redefine the skyline, and part of a larger urban vision .
- **Fact Station 2 - The Design Team:** Designed by Skidmore, Owings & Merrill (SOM). Lead architect was Adrian Smith, and structural engineer was Bill Baker. Inspired by the Hymenocallis desert flower.
- **Fact Station 3 - The Y-Shaped Structure:** The Y-shaped footprint improves wind stability and maximizes panoramic views .

Tunnel 2: Before Level 2 (2004 - Foundation Phase)

- **Fact Station 1 - Deep Foundations:** Over 50 meters deep, built into desert bedrock, and reinforced with steel .
- **Fact Station 2 - Massive Concrete Pour:** 330,000 cubic meters used, poured mostly at night because heat management was critical .
- **Fact Station 3 - Engineering Scale:** Thousands of workers involved in 24-hour work cycles, requiring precision at every stage .

Tunnel 3: Before Level 3 (2007 - Structure Phase)

- **Fact Station 1 - Rapid Vertical Rise:** Reached a pace of one floor every 3 days at peak, utilizing massive crane operations, and surpassing height records .
- **Fact Station 2 - Wind Engineering:** The building moves slightly on purpose, built to bend (not break), and engineered for super-strong winds .
- **Fact Station 3 - Safety Systems:** Utilized mandatory safety barriers, strict inspection systems, and height-specific procedures .

Tunnel 4: Before Level 4 (2010 - Completion Phase)

- **Fact Station 1 - The Investment & Financial Support:** Total construction cost was approx. $1.5 billion. Developed by Emaar Properties with financial support from Abu Dhabi during the 2008 crisis, taking over 22 million man-hours .
- **Fact Station 2 - From Burj Dubai to Burj Khalifa:** Originally named Burj Dubai, it was renamed on January 4, 2010, honoring Sheikh Khalifa bin Zayed Al Nahyan as a symbol of unity between Dubai & Abu Dhabi .
- **Fact Station 3 - The Visionary Leadership:** The project was championed by Sheikh Mohammed bin Rashid Al Maktoum, with government backing ensuring completion to redefine global skylines.

**** Full document is provided along with Gameplay map and Lesson plans.***

Appendix B

Player Flow Maps

A structural breakdown of the player's journey depending on the selected game mode.

Interactive Mode Flow:

1. Lobby (Mode Selection)
2. Teleport to Tunnel Part 1 -> Conversation with Dr. Ayaan -> Read 3 Facts
3. Level 1 (2002)
4. Tunnel Part 2 -> Read 3 Facts
5. Level 2 (2004)
6. Tunnel Part 3 -> Read 3 Facts
7. Level 3 (2007)
8. Tunnel Part 4 -> Read 3 Facts
9. Level 4 (End)

Exploration Mode Flow:

1. Lobby (Mode Selection)
2. Teleport to Tunnel Part 1 -> Conversation with Dr. Ayaan -> Read 3 Facts
3. Tunnel Part 2 -> Read 3 Facts (Bypasses Level 1)
4. Tunnel Part 3 -> Read 3 Facts (Bypasses Level 2)
5. Tunnel Part 4 -> Read 3 Facts (Bypasses Level 3)
6. Level 4 (End)

**** Full document is Provided along with Gameplay map and Lesson plans.***

End of this Document.