Assignment 2 Report

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Video Links:

- **Part A – Timeline:** https://youtu.be/zTXGdvw9S_U
- **Part B – AR Trailer:** https://youtu.be/r01QYgMBWxY
- **Part B – Unity Project Screen Capture**：https://youtu.be/8TTwDNVecKA

Part A: Unity Timeline Short Film

1. Research and Analysis

In preparation for this project, I viewed several Unity-based XR film productions and interactive trailers to better understand visual narrative techniques. One notable example is “The Heretic” by Unity Technologies, which stands out for its use of dynamic Cinemachine camera transitions and synchronized audio beats. I was particularly inspired by how the camera movement enhanced the narrative pacing without dialog. I also studied the Unity student showcase videos, especially those that combined natural environments, ambient lighting, and spatial audio.

2. Creativity and Innovation

This short film was created using the Unity timeline system. It extends the interactive forest environment I developed in Assignment 1. This world has several quiet forest paths accompanied by ambient sound effects and an abandoned house in the distance.

To create this movie, I designed a series of Cinemachine virtual cameras positioned in a cinematic perspective, focusing on the player's approach to key landmarks such as the river, trees, and house. The start of each camera was precisely timed in the timeline. I also created a VC camera to simulate slow movement in the environment.

3. Reflection and Evaluation

This project allowed me to explore Unity's timeline and Cinemachine tools in depth. One of the main challenges was managing multiple virtual cameras and the smooth switching between

them, especially aligning the camera orientation with the terrain and interaction hotspots. I solved this by using timeline markers and manually adjusting the clip duration.

Part B: Augmented Reality Interactive Environment

1. Research and Analysis

To explore meaningful uses of Augmented Reality, I reviewed several applications that present historical or educational narratives through image-based tracking. One example that inspired me was an AR museum guide, where physical exhibits were brought to life using animations and sound overlays. This led me to develop a concept centered on the evolution of human civilization, as it is a narrative that benefits from visual augmentation and temporal comparison.

I chose AR as the medium because it allows users to experience different time periods in a single physical space through interactive visuals. Each stage of human development is represented by a printed image, which is then animated in 3D when viewed through a mobile device. This format enhances engagement and encourages users to reflect on the passage of time and technological progress.

2. Creation and Innovation

My AR experience is titled **“A Journey Through Civilization”** and is designed as an interactive educational piece. Using Unity and Vuforia, I created an AR application that tracks three image targets, each representing a key stage in human history:

- **The Hunting Civilization**: A primitive human figure is shown using a bow and arrow, highlighting early survival techniques.
- **The Agricultural Civilization**: A figure planting crops demonstrates the shift to settled farming communities.
- **The Industrial Revolution**: A steam train and a worker represent rapid mechanization and energy exploitation.

Each target image triggers an animated 3D model and corresponding sound effects or ambient music, designed to suit the mood of each era. The assets were created or modified in Unity, with animations configured to play on target detection. The application is intended to be run on smartphones or tablets, and is best experienced in a gallery-style layout where the four images are placed side by side.

3. Reflection and Evaluation

Working on this AR experience has been both creatively exciting and technically demanding. One of the first hurdles I ran into was getting the image targets to work reliably with Vuforia. I realized that simple, bold, high-contrast visuals gave the best results, so I tweaked the images a few times and tested them under different lighting conditions to be sure they were picked up quickly and consistently.

Another tricky part was making sure the 3D models looked good and made sense for each era. It wasn't just about throwing in a model — it had to feel like it belonged there, visually and thematically. That took some experimenting and back-and-forth adjustments.

The biggest balancing act was between what I wanted to show, and what was actually doable with the tools. The Industrial Revolution scene is still a work in progress — I'm debating between using a mining animation or a moving steam train. For the Future Civilization, I'm going for a cyberpunk feel, probably with a flying spaceship, but I'm still figuring out the right mix of color, movement, and audio to really sell the atmosphere.

Despite the bumps along the way, I've learned a lot. It's been fun figuring out how to tell a story through space — how just placing four images in the real world can create a kind of timeline that people move through. Adding ambient sound for each era made a huge difference too — from tribal drums in the hunting age to synth sounds for the future scene, the audio helped set the tone in a subtle but powerful way.

If I had more time, I'd love to build in more interactivity — maybe tapping on a model to hear a fact or two, or changing music based on where the user is standing. I also think this kind of experience could work really well in an educational setting. It's low-cost, portable, and lets people "walk through" human history using nothing but their phone.
