Architecting Fear — Level Design Strategies for Sustained Tension in Sci-Fi Horror Games

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Declaration

I, Lan Zheng Yuan declare that this thesis report entitled “Horror among indies: The reason behind popularity of Mascot Horror among indie developer” is my own original work except for the citation from the references. The report has not been accepted or submitted to any party and will only be submitted to Degree of Bachelor of Art (Honours) Game Design under the University Tunku Abdul Rahman.

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Project Introduction

The Spectral is a first-person shooter, survival horror game. The game story had partly referred from “Alien” series and “Dead Space”, the story is about a research team on Pluto suddenly lost contact with the company. Ethan as a technician, was sent to the planet to investigate and repair the communication systems. After investigation, Ethan realised that the arrival of humans seemed to be an invasion to the local ‘indigenous’. The whole research team is unconscious but still have vital signs. He must escape from the planet. This brings out the/those scope(s) and a definition of this research.

Science fiction horror games often leave a different impression compared to other horror genres. Instead of relying only on sudden scares or disturbing imagery, these games usually create fear by placing the player in unfamiliar and hostile environments, such as space stations or abandoned spacecrafts. In these settings, the feeling of danger does not come immediately. It slowly builds up as the player moves through the space.

This paper focuses on how level design plays a key role in maintaining this long-lasting tension. Rather than treating levels as simple stages for gameplay, sci-fi horror games often turn space itself into a source of fear. By analysing *Alien: Isolation* and *Dead Space*, this study looks at how level layout, navigation flow, and environmental design work together to keep players under constant pressure.

1.1 Background

Horror games have existed for decades, but the methods used to frighten players have changed significantly over time. Earlier horror titles often relied heavily on scripted jump scares, limited camera visibility, or sudden enemy appearances. While these methods were effective during the early stages of horror game development, players eventually became more familiar with these patterns. As game technology improved and audiences became more experienced, developers started focusing on a different type of fear: sustained tension.

Sustained tension refers to a prolonged feeling of uneasiness that remains present even when immediate danger is not visible. Instead of frightening the player for only a few seconds, the game slowly creates psychological pressure through atmosphere, uncertainty, and environmental design. In sci-fi horror games especially, this approach became extremely important.

Unlike traditional horror settings such as haunted houses or abandoned villages, sci-fi horror usually takes place in isolated technological environments. Space stations, industrial ships, underground facilities, and damaged laboratories naturally create discomfort because they feel unfamiliar yet believable. The player is often trapped in a closed environment with limited escape routes. Lighting is artificial, mechanical sounds constantly echo through corridors, and communication systems are frequently damaged or unstable. Even before enemies appear, the setting itself already creates tension.

Because of this, level design becomes more than simple environmental decoration. The arrangement of rooms, corridor width, visibility range, lighting placement, environmental storytelling, and navigation structure all directly affect how the player emotionally reacts to the game world.

Two of the most influential examples of this design philosophy are Alien: Isolation and Dead Space. Although both games belong to the sci-fi horror genre, they approach fear differently. Alien: Isolation focuses heavily on unpredictability and vulnerability, while Dead Space combines combat with oppressive environmental pressure. Despite their differences, both games demonstrate how carefully designed spaces can maintain fear for long periods of time.

At the same time, modern game development tools such as Unreal Engine 5 allow student developers and independent creators to recreate similar horror experiences through lighting systems, post-processing, environmental effects, Sequencer cinematics, decals, volumetric fog, and material design. Understanding how professional horror games use these systems can help smaller projects create stronger emotional impact without relying entirely on expensive assets or highly complex AI systems.

This research therefore studies not only the theory behind horror level design, but also how these concepts can be translated into practical implementation inside Unreal Engine 5.

1.2 Game Introduction and Research Motivation

The main motivation behind this research comes from observing how effective environmental design can completely change the emotional experience of a horror game. During development experiments and gameplay analysis, it became clear that fear is not created only by monsters or scripted scenes. In many cases, players become more afraid while simply walking through empty hallways than during direct combat.

This effect is especially visible in Alien: Isolation. The game spends large amounts of time allowing players to slowly explore the Sevastopol station while the possibility of danger constantly exists in the background. The player rarely feels safe, even when nothing is happening. This constant uncertainty becomes the main source of tension.

Dead Space creates a different but equally effective experience. The player is armed and capable of fighting back, yet the environment constantly pressures the player through restricted movement, limited visibility, disturbing audio design, and resource scarcity.

The group project associated with this research also focuses on horror gameplay involving exploration, environmental storytelling, ghost encounters, and player navigation through enclosed spaces. During early development stages, several technical and artistic questions emerged:

- How bright should emissive lighting be in horror environments?
- How can flickering lights increase tension without becoming visually distracting?
- How should fog be used to reduce visibility while maintaining performance?
- How can decals such as blood stains improve environmental storytelling?
- How can cutscenes be directed effectively using Unreal Engine Sequencer?

These practical development questions became directly connected to the broader research topic of architecting fear through level design.

1.3 Problem Statement

Many student horror projects focus mainly on enemy design or jump scares while underestimating the importance of environmental structure and pacing. As a result, the horror experience often becomes repetitive or loses tension after players become familiar with the mechanics.

Another issue is that modern engines such as Unreal Engine 5 provide extremely powerful visual tools, but inexperienced developers may unintentionally reduce fear by over-lighting scenes, overusing visual effects, or designing spaces that feel visually impressive but emotionally safe.

For example, emissive lighting can quickly make horror scenes appear too bright if intensity values are not controlled properly. Excessive visibility removes uncertainty, which weakens tension. Similarly, environmental fog may either enhance atmosphere or negatively affect gameplay readability depending on how it is implemented.

There is therefore a need to study how successful sci-fi horror games combine environmental design principles with practical technical implementation.

1.4 Research Objectives and Questions

1.4.1 Research Objectives

The objectives of this study are:

1. To analyze how level design creates sustained tension in sci-fi horror games.
2. To compare the environmental design strategies used in Alien: Isolation and Dead Space.
3. To study how lighting, fog, decals, and cinematics contribute to psychological horror.
4. To explore practical implementation methods inside Unreal Engine 5.
5. To apply these findings into the development of a student horror game project.

1.4.2 Research Questions

1. How does level design maintain fear over long periods of gameplay?

2. What spatial design differences exist between Alien: Isolation and Dead Space?
3. How do environmental effects such as lighting and fog affect player tension?
4. How can Unreal Engine 5 tools be used to recreate professional horror atmosphere?
5. How can research findings directly influence game development decisions?

1.5 Significance of Study

This research is significant because it bridges theoretical horror analysis with practical game development. Many academic studies discuss horror from narrative or cinematic perspectives, but fewer studies connect emotional design directly to environmental construction inside game engines.

For student developers, understanding how professional horror games manipulate player emotion can improve project quality significantly. Instead of relying solely on scripted scares, developers can design spaces that naturally create pressure and uncertainty.

The study also demonstrates how Unreal Engine 5 tools such as emissive materials, volumetric fog, decals, and Sequencer cinematics can support environmental storytelling and horror pacing.

1.6 Scope and Limitations

1.6.1 Scope of Study

The study focuses mainly on:

- Sci-fi horror games
- Environmental tension
- Level design structure
- Unreal Engine 5 implementation
- Single-player experiences

1.6.2 Methodological Limitations

The research relies primarily on qualitative analysis rather than large-scale statistical testing.

1.6.3 Theoretical Boundaries

The study focuses more on spatial and environmental horror rather than narrative psychology alone.

1.6.4 Limitations of Practical Application

Some advanced AAA techniques cannot be fully recreated due to hardware, development time, and team limitations.

2.0 Background Studies and Literature Review

2.1 Research Background

Fear in games differs from fear in films because games require direct player participation. Players are not passive observers. They must move forward, make decisions, and expose themselves to danger.

This means level design becomes deeply connected to emotional experience. A hallway is not simply geometry. Its length, visibility, sound behavior, lighting, and enemy placement all affect how the player feels while moving through it.

Environmental storytelling is another important aspect of modern horror design. Rather than explaining events through dialogue alone, horror games often use surroundings to communicate history. Blood stains, broken machinery, damaged walls, flickering monitors, and abandoned equipment all imply previous events without direct exposition.

Sci-fi horror especially benefits from this approach because industrial environments naturally support visual storytelling.

2.2 Definition of Key Terms

Sustained Tension

A prolonged emotional state where players continuously expect danger even when immediate threats are absent.

Environmental Storytelling

Narrative communication through visual surroundings rather than direct dialogue or exposition.

Spatial Pressure

Psychological discomfort created through environmental arrangement such as narrow corridors, low ceilings, or restricted visibility.

Emissive Lighting

A material-based lighting technique in Unreal Engine where surfaces appear to emit light.

Volumetric Fog

A rendering system that simulates atmospheric density and light scattering.

Decals

Projected textures applied onto surfaces for effects such as blood stains, dirt, damage, or graffiti.

Sequencer

A cinematic tool in Unreal Engine used to create cutscenes, camera movement, and timeline-based events.

2.3 Gaps in Literature

While many studies discuss horror atmosphere generally, fewer studies focus specifically on how level design decisions translate into practical Unreal Engine implementation. Existing research often separates theory and development practice.

This study attempts to connect both areas by discussing not only why horror spaces work emotionally, but also how developers can construct those spaces technically.

2.4 Research Questions and Hypotheses

2.4.1 Research Questions and Hypotheses

Hypothesis 1: Carefully controlled visibility and environmental uncertainty increase sustained tension.

Hypothesis 2: Dynamic environmental effects such as flickering lights and volumetric fog improve player anxiety when used moderately.

Hypothesis 3: Environmental storytelling through decals and prop placement increases immersion and emotional investment.

Hypothesis 4: Cutscene pacing and camera framing contribute significantly to horror atmosphere.

2.5 Literature Review

2.5.1 Horror and Environmental Design

Environmental design in horror games is closely connected to pacing and uncertainty. Players often fear spaces they do not fully understand.

Games that provide too much visual clarity frequently lose tension because players quickly learn where danger exists. In contrast, horror games intentionally reduce certainty through lighting, sound, and spatial arrangement.

2.5.2 Psychological Effects of Lighting

Lighting heavily influences emotional response. Brightly lit spaces generally feel safer because players can clearly identify threats and escape routes.

In horror games, designers often intentionally reduce visibility. However, complete darkness may frustrate players. Successful horror lighting therefore balances readability with uncertainty.

2.5.3 Interactive Media and Player Anxiety

Unlike films, games require player interaction. This means anxiety increases when players must actively enter threatening areas themselves.

This interaction creates hesitation. Players may pause before opening doors or turning corners even when no enemy is visible.

2.6 Comparative Case Studies

2.6.1 Alien: Isolation

Alien: Isolation demonstrates how unpredictability can sustain fear for long periods. The Alien creature behaves dynamically rather than through fully scripted patterns.

The Sevastopol station is designed with layered corridors, vents, maintenance tunnels, and interconnected sections that encourage cautious movement.

Lighting is extremely important in the game. Many scenes use dim industrial lighting combined with blinking alarms and heavy shadows.

The game also uses environmental sound carefully. Mechanical noises constantly make players uncertain whether movement nearby is environmental or hostile.

2.6.2 Dead Space

Dead Space combines action with oppressive atmosphere. Although players possess weapons, the environment continuously reinforces danger.

The USG Ishimura contains narrow industrial hallways, low visibility, damaged infrastructure, and disturbing visual storytelling.

Enemy encounters are often connected directly to room design. Combat spaces intentionally restrict movement and visibility.

2.6.3 Comparative Insights

Alien: Isolation focuses more on vulnerability and unpredictability.

Dead Space focuses more on pressure and environmental oppression.

Both games use level design to influence player emotion rather than relying entirely on scripted horror moments.

3.0 System Specification and Research Methodology

3.1 Functional Requirements

3.1.1 Player Input and Control System

The player must be able to:

- Move through enclosed environments
- Interact with doors and objects
- Hide from threats
- Trigger environmental events
- Explore story locations

3.1.2 Environmental Interaction System

The environment should support:

- Dynamic lighting
- Fog effects
- Sound triggers
- Flickering lights
- Decal projection

3.1.3 Core Gameplay Mechanics

Core gameplay focuses on:

- Exploration
- Survival
- Tension management
- Objective completion
- Environmental storytelling

3.2 Non-Functional Requirements

3.2.1 System Requirements

Development uses Unreal Engine 5.

The game requires:

- Real-time rendering
- Stable frame rate
- Dynamic lighting support
- Volumetric fog capability
- Sequencer cinematics

3.2.2 Development Tools

Main tools include:

- Unreal Engine 5
- Blender
- Substance Painter
- Photoshop

3.3 Research Design

The study uses qualitative comparative analysis combined with development experimentation.

Gameplay observation, environment analysis, and practical Unreal Engine testing were used to study horror implementation.

3.4 Data Collection Methods

3.4.1 Gameplay Observation

Key gameplay sequences from Alien: Isolation and Dead Space were analyzed repeatedly.

3.4.2 Development Experimentation

Practical experiments inside Unreal Engine 5 were conducted involving:

- Emissive lighting
- Flickering systems
- Fog density
- Decal placement
- Sequencer cutscenes

3.5 Participants and Sampling

Participants included students familiar with horror games and Unreal Engine workflows.

3.6 Research Application in Game Development

3.6.1 Translating Horror Theory into Level Design

One major goal of the project was converting theoretical horror concepts into actual playable environments.

For example, sustained tension in Alien: Isolation comes largely from uncertainty. To apply this idea, level layouts inside the project intentionally avoid overly open environments.

Instead, the design uses:

- Long corridors
- Broken visibility
- Sharp corners
- Layered room connections
- Limited escape routes

These design choices slow down player movement naturally.

Players hesitate because they cannot fully predict what lies ahead.

3.6.2 Environmental Storytelling Application

Environmental storytelling was implemented through:

- Blood decals
- Damaged props
- Flickering monitors
- Audio logs
- Emergency lighting

Rather than directly explaining events, the environment suggests previous incidents.

This method increases immersion because players piece together information themselves.

3.6.3 Lighting and Visibility Design

One of the most important development problems involved emissive lighting.

During early development tests, some horror scenes became too bright because emissive materials were used aggressively.

In Unreal Engine 5, emissive materials can appear visually intense even without casting actual light. When values become too high, environments lose darkness and therefore lose tension.

To solve this issue, several adjustments were made:

- Lower emissive intensity values
- Reduce bloom settings in post processing
- Use localized practical lights instead of full room illumination
- Introduce stronger shadow contrast
- Use colder color temperatures

Instead of lighting entire rooms evenly, the project intentionally leaves large areas partially obscured.

This creates uncertainty and improves atmosphere.

3.6.4 Flickering Light Implementation

Flickering lights were implemented to simulate unstable electrical systems.

Inside Unreal Engine 5, flicker behavior can be created using:

- Blueprint timelines
- Material parameter changes
- Light intensity oscillation
- Randomized delay systems

However, excessive flickering quickly becomes distracting.

Therefore, the project limits flickering mainly to:

- Hallway intersections
- Emergency warning scenes
- Nearby objective areas
- Enemy encounter buildup

The flicker effect is used less as visual decoration and more as psychological pacing.

3.6.5 Fog and Atmospheric Density

Volumetric fog was used to reduce long-distance visibility.

In Unreal Engine 5, Exponential Height Fog with Volumetric Fog enabled allows atmospheric scattering effects.

The project uses fog carefully because excessive density can frustrate navigation.

Fog was mainly applied in:

- Reactor rooms
- Exterior observation sections
- Ventilation systems
- Damaged corridors

By reducing visual clarity, fog creates uncertainty while also helping hide environmental transitions.

3.6.6 Decal Usage for Environmental Horror

Blood decals became an important storytelling tool.

Using Deferred Decal materials in Unreal Engine 5, blood stains were projected onto:

- Floors
- Walls
- Pipes
- Doors

Variation was important.

Repeating identical blood patterns made environments appear artificial. Therefore, multiple decal variations with different rotations and opacity levels were used.

In some situations, decals also guide player attention indirectly.

For example, blood trails leading into dark corridors encourage investigation while increasing tension.

3.6.7 Sequencer Cutscene Integration

Sequencer was used to create narrative transitions and scripted horror moments.

Instead of relying on lengthy cinematic scenes, the project uses short cutscenes to:

- Introduce danger
- Reveal environmental changes
- Establish pacing
- Transition between gameplay phases

Camera movement was intentionally slow and controlled.

Quick camera cuts were avoided because they reduced environmental immersion.

The cutscene workflow involved:

1. Creating a Level Sequence
2. Adding Cine Camera Actors
3. Animating camera movement through keyframes
4. Adjusting focal length and depth of field
5. Synchronizing audio and lighting events
6. Triggering the sequence through Blueprint overlap events

This system allowed gameplay and cinematics to feel connected rather than completely separated.

4.0 Design and Implementation

4.1 Art Direction

The project uses industrial sci-fi visual design inspired by Alien: Isolation and Dead Space.

Textures focus heavily on:

- Metal surfaces
- Mechanical wear
- Surface dirt
- Damaged infrastructure
- Emergency color palettes

Warm lighting is used sparingly because overly comfortable environments reduce tension.

Most scenes rely on:

- Cold lighting
- Industrial gray tones
- Dim red emergency lights
- Heavy shadows

4.2 Horror Space Construction

Corridor Design

Corridors are intentionally narrow to reduce player comfort.

Wider spaces are occasionally introduced to create pacing contrast.

When players move from tight corridors into larger spaces, uncertainty temporarily increases because enemies may appear from multiple directions.

Room Transitions

Transitions between rooms are important because players psychologically prepare for danger while approaching doorways.

Lighting and sound are often changed before major gameplay events.

Verticality

Ceiling pipes, hanging cables, and overhead structures reduce visual openness.

This creates claustrophobic pressure.

4.3 Lighting Implementation in Unreal Engine 5

Lighting became one of the most important aspects of development.

Emissive Lighting Problems

Early scenes looked visually impressive but lacked horror atmosphere because emissive intensity values were too high.

The environment appeared more like a sci-fi action game than horror.

To fix this:

- Material emissive multipliers were lowered significantly.
- Bloom intensity inside Post Process Volume was reduced.
- Additional darkness was introduced through exposure control.
- Light sources were localized rather than global.

Exposure Control

Auto exposure can unintentionally brighten dark scenes.

To maintain horror atmosphere, exposure settings were manually limited inside Post Process Volumes.

This prevented the engine from automatically brightening dark environments.

Color Theory

Blue and green tones were used more frequently because they create colder emotional responses.

Red emergency lighting was reserved for high tension moments.

4.4 Flickering Systems

The flicker system was created using Blueprint timelines.

Instead of completely random flickering, patterns were designed intentionally.

For example:

- Slow flickers suggest unstable power.
- Sudden rapid flickers suggest immediate danger.
- Flickers synchronized with sound cues increase tension.

In some sequences, lights briefly shut off entirely before enemy encounters.

This creates anticipation because players momentarily lose visual information.

4.5 Fog and Atmospheric Systems

Fog contributes heavily to environmental depth.

Using Exponential Height Fog with volumetric scattering, scenes gained:

- Greater depth perception

- Reduced long-distance visibility
- Improved lighting atmosphere
- Enhanced silhouette visibility

Fog density was adjusted differently depending on gameplay context.

For exploration sections, fog remained relatively light.

For danger zones, fog density increased to create uncertainty.

Light shafts interacting with fog also improved environmental realism.

4.6 Decal Design and Blood Effects

Blood decals play both artistic and narrative roles.

Rather than placing blood randomly, decal placement follows environmental storytelling logic.

For example:

- Blood near doors suggests attempted escape.
- Drag marks imply movement.
- Ceiling blood splatter implies violent impact.

Decal materials were created with:

- Roughness variation
- Opacity variation
- Normal detail
- Edge fading

This prevented blood from appearing flat or unrealistic.

Wet blood decals were given slight reflectivity to catch emergency lighting.

4.7 Sequencer Cutscene Design

Cutscenes were designed to support pacing rather than interrupt gameplay.

Camera Movement

Slow movement was prioritized.

Fast cinematic movement often reduced tension because players became passive observers instead of cautious participants.

Framing

Doorways, corridors, and partial visibility were used heavily in framing.

Instead of fully revealing threats, cameras frequently obscured parts of the environment.

Audio Synchronization

Environmental sounds were layered with Sequencer events.

For example:

- Mechanical alarms
- Distant creature noises
- Sudden silence
- Electrical sparks

These sounds often begin before visual reveals.

Gameplay Transition

At the end of sequences, control is returned smoothly to the player.

Abrupt transitions were avoided because they weakened immersion.

4.8 Technical Challenges

Several technical difficulties occurred during development.

Performance Issues

Volumetric fog and dynamic lighting significantly affected performance.

Optimization methods included:

- Limiting volumetric light count
- Reducing unnecessary shadow casters
- Using Level of Detail models
- Optimizing decal usage

Visibility Balance

Making scenes too dark frustrated players.

Making scenes too bright removed tension.

Finding the correct balance required repeated testing.

Sequencer Timing

Cutscenes initially disrupted gameplay pacing.

This problem was solved by shortening sequence duration and maintaining environmental continuity.

4.9 Visual Filter and Found-Footage Camera Effect Implementation

Another visual direction added during later development stages was the implementation of a VHS and found-footage style camera filter. The purpose of this feature was not only aesthetic, but also psychological. Many horror films from the late 1990s and early 2000s used handheld DV cameras and low-quality recording formats to create realism and discomfort. Found-footage horror often feels more personal because the audience experiences events through the character's recording device instead of through a cinematic camera.

This idea influenced the project's visual presentation inside Unreal Engine 5. Instead of presenting the game world through a perfectly clean digital image, the player camera was modified to imitate an older DV recording device. Several visual elements were introduced to recreate this effect.

The first element involved adding subtle screen noise and analog distortion. Using post-process materials, light film grain and horizontal interference lines were layered onto the player camera. The effect was intentionally kept relatively soft because excessive distortion quickly became distracting during gameplay. The goal was to create visual discomfort without making navigation frustrating.

The second element involved lens damage and screen edge imperfections. Small scratches, dirt marks, and faint chromatic distortions were added near the borders of the screen. During darker scenes, these imperfections became slightly more visible, helping the image feel physically recorded instead of digitally rendered.

A recording overlay inspired by early DV camcorders was also added. Elements such as recording indicators, timestamp displays, battery icons, and camera interface graphics appeared directly inside the player view. This helped strengthen the illusion that the player was operating a physical recording device inside the game world.

From a psychological perspective, the VHS effect changed how players perceived the environment. The lower image clarity increased uncertainty because distant movement became harder to identify immediately. Static interference and exposure fluctuation also caused players to focus more carefully on environmental details. This unintentionally slowed exploration pacing, which improved tension in several sections of the game.

Lighting behavior also interacted differently with the VHS filter. Bright emissive lights occasionally created overexposed bloom similar to older video cameras, while darker scenes produced grainier shadows. This visual instability made environments feel less controlled and less technologically reliable, which matched the project's horror direction.

Another important observation was that the handheld recording aesthetic made scripted sequences feel more believable. When combined with Sequencer cinematics and environmental audio, the presentation resembled archived incident footage rather than traditional gameplay cutscenes. This strengthened immersion because players felt as though they were witnessing events directly instead of watching a polished cinematic presentation.

The VHS approach was partly inspired by horror films and games that use analog horror aesthetics, but it was adapted carefully to fit the sci-fi setting of the project. Instead of fully recreating a retro visual style, the filter was used selectively to support atmosphere and environmental storytelling.

Overall, the found-footage camera system became more than a visual filter. It influenced player perception, environmental readability, pacing, and emotional tension simultaneously. By intentionally reducing visual perfection, the project created a stronger sense of vulnerability and realism within the horror experience.

5.0 Discussion

5.1 Interpretation of Findings

The research demonstrates that sustained fear depends heavily on environmental control rather than isolated horror moments.

Both Alien: Isolation and Dead Space use space itself as a psychological tool.

Players fear uncertainty more than direct confrontation.

Lighting, sound, room structure, and visibility all contribute to emotional pressure.

5.2 Effectiveness of Environmental Design

The most effective environments were not necessarily the most visually detailed.

Instead, effective horror spaces shared several characteristics:

- Limited visibility
- Spatial uncertainty
- Controlled pacing
- Layered environmental storytelling
- Strong sound atmosphere

This demonstrates that horror atmosphere depends more on emotional design than graphical complexity.

5.3 Unreal Engine 5 as a Horror Development Tool

Unreal Engine 5 provides powerful systems for horror development.

Features such as:

- Lumen lighting
- Volumetric fog
- Decals
- Sequencer
- Material systems

allow smaller development teams to create cinematic horror experiences.

However, these systems require careful balancing.

Overusing visual effects can reduce fear instead of increasing it.

5.4 Reflections on Development

One important lesson from the project was that horror design depends heavily on restraint.

During early development, there was a tendency to overuse:

- Bright lighting
- Fog density
- Visual effects
- Flickering systems

Over time, it became clear that subtle environmental pressure was usually more effective.

Players often became more nervous in quieter scenes than during obvious scripted scares.

6.0 Conclusion and Future Directions

6.1 Conclusion

This research explored how level design strategies create sustained tension in sci-fi horror games.

Through analysis of Alien: Isolation and Dead Space, it became clear that fear is strongly connected to environmental structure.

The arrangement of spaces, visibility control, environmental storytelling, lighting, sound, and pacing all influence player psychology.

The study also demonstrated how Unreal Engine 5 tools can practically support horror design.

Features such as emissive lighting, flickering systems, volumetric fog, decals, and Sequencer cinematics are not simply technical features. When used carefully, they become emotional design tools.

Most importantly, the project showed that effective horror does not rely entirely on jump scares or enemy quantity.

Very often, fear emerges from uncertainty and hesitation.

Players become afraid because the environment makes them unsure about what exists ahead.

In this way, the architecture itself becomes part of the horror experience.

6.2 Practical Applications

The findings from this research can help:

- Student developers
- Independent horror creators
- Unreal Engine beginners
- Environmental artists
- Level designers

understand how emotional atmosphere can be constructed through environmental systems.

6.3 Future Directions

Future development could explore:

- Advanced enemy AI systems
- Dynamic procedural horror events
- VR horror implementation
- Adaptive sound systems
- Real-time player stress analysis

Further studies may also compare sci-fi horror with psychological horror or survival horror genres.

6.4 Final Reflections

Architecting fear is ultimately about controlling how players experience space.

The most memorable horror environments are rarely frightening because of appearance alone.

Instead, they are frightening because they influence player behavior.

Players slow down.

They hesitate before opening doors.

They question whether moving forward is safe.

When a game successfully creates those reactions, the environment itself becomes the monster.

7.0 Extended Development Analysis

7.1 Understanding Fear Through Player Movement

One important observation made during the research process was that fear in games is strongly connected to movement speed. In many action games, players move quickly and confidently through environments because they understand that mobility represents safety and power. Horror games intentionally reverse this idea.

In Alien: Isolation, players frequently crouch, stop moving, or slowly lean around corners. The environment encourages careful movement because players are unsure whether danger is nearby. The level design therefore indirectly controls player pacing.

This concept became important during development testing in Unreal Engine 5. Early prototype levels allowed players to move too freely through large open rooms. Although the environment looked visually impressive, the gameplay lacked tension because players could easily understand the space.

After redesigning the layout into smaller interconnected sections, player behavior changed significantly. Narrower spaces forced players to move more carefully. Corners blocked visibility. Environmental sounds became harder to identify spatially.

This demonstrates that horror pacing is not only created by scripted events. The geometry itself changes player psychology.

7.2 Corridor Psychology in Horror Design

Corridors appear constantly in sci-fi horror games because they naturally create directional tension.

When players move through corridors, they lose environmental awareness. They usually only see what exists directly ahead. This restriction creates anticipation because players suspect danger may exist around the next corner.

During analysis of Dead Space, corridor width became especially noticeable. Many corridors are intentionally designed slightly narrower than realistic industrial architecture. Pipes, cables, and machinery also occupy visual space, making the environment feel more compressed.

Inside Unreal Engine 5, similar effects were recreated by:

- Lowering ceiling height
- Adding hanging cables
- Using narrow door frames
- Introducing partial environmental blockage
- Using fog to reduce depth visibility

These techniques were simple technically but highly effective emotionally.

Another important factor was corridor length. Extremely short corridors reduced anticipation because players immediately understood the surrounding space. Extremely long corridors became repetitive.

The project therefore used medium-length corridors with intermittent environmental interruption.

Examples included:

- Broken lights
- Steam leaks
- Side room entrances
- Emergency alarms
- Shadow movement

These interruptions maintained player attention during traversal.

7.3 Sound Design and Environmental Fear

Although this research focuses mainly on level design, environmental sound repeatedly appeared as one of the strongest supporting systems for tension.

Alien: Isolation uses sound carefully to confuse players. Mechanical sounds, ventilation movement, distant impacts, and electrical noise all blend together.

As a result, players become uncertain whether sounds are environmental or hostile.

This uncertainty increases anxiety.

During practical development, several sound design principles were tested:

Layered Ambient Audio

Instead of relying on a single ambient loop, environments used multiple layered sounds.

For example:

- Distant machinery
- Electrical humming
- Pipe pressure release
- Metal creaking
- Alarm distortion

This created environmental depth.

Directional Sound Placement

Players become more nervous when sounds are spatially believable.

Using attenuation systems inside Unreal Engine 5, sound sources were positioned throughout environments.

This caused players to investigate sounds naturally.

Silence as Tension

One surprising discovery was that silence often created more fear than loud audio.

In several gameplay tests, removing environmental sound before enemy encounters caused players to become significantly more cautious.

Silence therefore became part of the pacing structure.

7.4 Environmental Storytelling Through Damage and Decay

Environmental storytelling is one of the defining characteristics of sci-fi horror.

Rather than directly explaining events through dialogue, environments visually imply what happened previously.

Dead Space is especially effective at this.

The Ishimura constantly communicates collapse and panic through:

- Blood stains
- Emergency barricades
- Damaged equipment
- Corpse placement
- Flickering monitors
- Broken lighting

This approach heavily influenced the project design process.

During asset placement, environments were intentionally treated as locations with history rather than empty gameplay spaces.

For example, a medical room was not simply furnished randomly. The arrangement suggested:

- Failed evacuation attempts
- Interrupted procedures
- Violent encounters
- Emergency lockdowns

This approach improved immersion because environments felt inhabited before the player's arrival.

7.5 The Relationship Between Lighting and Fear

Lighting became one of the most difficult aspects of development.

Many beginner horror projects unintentionally destroy atmosphere by making environments too visually readable.

In Unreal Engine 5, emissive materials and Lumen lighting systems can create highly cinematic visuals. However, visually attractive scenes are not always emotionally effective.

During early experiments, emissive panels and neon lighting were given high intensity values. While the environment appeared technologically advanced, the horror atmosphere disappeared.

Players moved confidently because they could clearly see surrounding areas.

This revealed an important lesson:

Fear depends heavily on incomplete information.

To restore tension, the project intentionally reduced visibility.

Several techniques were used:

- Uneven light distribution
- Partial shadow coverage
- Localized practical lights
- Reduced reflective intensity
- Selective environmental darkness

Another important factor involved color usage.

Warm colors generally create comfort.

Cold colors create emotional distance.

Because of this, the project relied heavily on:

- Blue lighting
- Green industrial tones
- White fluorescent lighting
- Red emergency highlights

Red lighting was reserved for danger escalation.

If red lighting appeared constantly, it lost emotional impact.

7.6 Implementing Flickering Systems in Unreal Engine 5

Flickering lights are extremely common in horror games, but poor implementation can quickly become repetitive.

Several flicker approaches were tested during development.

Blueprint Timeline Method

This method used timeline nodes to animate light intensity.

Advantages:

- Simple implementation
- Adjustable timing
- Predictable behavior

Disadvantages:

- Patterns became recognizable over time

Randomized Intensity Method

Random value generation created less predictable flickers.

Advantages:

- More natural appearance
- Greater unpredictability

Disadvantages:

- Difficult to control pacing precisely

Material Flicker Method

Emissive materials themselves were animated.

Advantages:

- Lower performance cost
- Strong visual effect

Disadvantages:

- Did not affect environmental shadows significantly

Eventually, a hybrid system was used.

Important gameplay moments used controlled flicker patterns while background environmental lights used softer randomized behavior.

This created more believable environments.

7.7 Fog as Psychological Obstruction

Fog in horror games serves multiple purposes beyond atmosphere.

Firstly, it reduces visual clarity.

Secondly, it obscures environmental boundaries.

Thirdly, it softens distant geometry, making environments feel larger and less predictable.

During Unreal Engine 5 testing, volumetric fog dramatically changed player perception.

Without fog, players immediately understood room scale.

With fog, players became more cautious because visibility decreased.

However, fog density required careful balancing.

Extremely dense fog created frustration because navigation became unclear.

The project therefore used environmental variation.

Examples included:

- Light fog in exploration zones
- Heavy fog near reactor sections
- Directional fog beams near lighting sources
- Steam-like localized fog effects near machinery

Combining fog with lighting also produced stronger silhouettes.

This improved visual composition while maintaining uncertainty.

7.8 Decals and the Illusion of Violence

Blood decals significantly affected environmental realism.

Without decals, environments appeared mechanically clean and emotionally empty.

Adding blood immediately suggested danger.

However, decal placement required logic.

Random blood placement reduced believability.

The project therefore approached decals narratively.

Examples included:

- Blood handprints near exits
- Drag trails toward dark corridors
- Ceiling splatter near machinery
- Impact stains near walls

Layering decals also improved realism.

Instead of using one large blood texture, environments combined:

- Small splatter decals
- Smear decals
- Pool decals
- Footprint decals

Variation prevented repetition.

Material roughness was another important factor.

Fresh blood was slightly reflective.

Older blood appeared darker and less reflective.

These details subtly improved environmental credibility.

7.9 Sequencer and Cinematic Horror Direction

Cutscenes in horror games require different pacing compared to action games.

Action games often prioritize fast editing and dramatic movement.

Horror benefits more from controlled pacing.

Inside Unreal Engine 5 Sequencer, several cinematic principles were tested.

Slow Camera Motion

Slow movement increased tension because players focused more carefully on environmental detail.

Environmental Framing

Instead of fully revealing threats immediately, cameras often framed:

- Partially open doors
- Obstructed hallways
- Distant movement
- Reflections
- Shadow silhouettes

This encouraged anticipation.

Depth of Field Usage

Depth of field helped direct visual attention.

However, excessive blur reduced environmental readability.

Moderate settings were therefore preferred.

Sequencer Gameplay Integration

Long cinematics reduced immersion because players lost interaction.

To solve this problem, cutscenes were shortened significantly.

Some sequences lasted only several seconds before returning control.

This maintained pacing continuity.

7.10 Comparing Alien: Isolation and Dead Space in Greater Detail

Although both games are sci-fi horror titles, they create tension differently.

Alien: Isolation

Core emotional focus:

- Vulnerability
- Uncertainty
- Hiding

- Audio tension
- Dynamic unpredictability

Environmental structure:

- Interconnected station layout
- Frequent backtracking
- Layered navigation
- Maintenance corridors
- Hiding spaces integrated into gameplay

Player psychology:

Players fear being discovered.

Movement itself becomes stressful.

Dead Space

Core emotional focus:

- Pressure
- Isolation
- Combat anxiety
- Environmental oppression
- Resource management

Environmental structure:

- Linear progression
- Combat arenas
- Industrial claustrophobia
- Hazardous machinery
- Scripted environmental danger

Player psychology:

Players fear becoming overwhelmed.

The project attempted to combine elements from both approaches.

Exploration sections focused more on Alien: Isolation style tension.

Encounter sections used more direct environmental pressure inspired by Dead Space.

7.11 Player Testing Observations

During prototype testing, several consistent player behaviors appeared.

Hesitation at Doorways

Players frequently paused before opening doors when environmental sound increased.

This demonstrated successful tension buildup.

Flashlight Overuse

Players repeatedly focused lighting toward dark corners.

This indicated uncertainty and fear of hidden threats.

Slow Exploration

When fog density and environmental sound were balanced correctly, players moved more cautiously.

Reduced Fear in Bright Areas

Well-lit environments immediately reduced tension.

Players became more aggressive and confident.

These observations reinforced the importance of visibility control.

7.12 Technical Reflection on Unreal Engine 5

Unreal Engine 5 provides powerful horror development tools, but visual quality alone does not guarantee atmosphere.

Several systems required careful optimization.

Lumen Lighting

Lumen improved environmental realism dramatically.

However, fully realistic lighting sometimes reduced horror stylization.

Selective artistic adjustment was therefore necessary.

Nanite Geometry

Nanite allowed detailed environments without extreme polygon limitations.

This improved environmental storytelling because props and architecture could contain greater detail.

Volumetric Effects

Volumetric systems significantly improved atmosphere but affected performance.

Optimization therefore became important.

Blueprint Systems

Blueprint scripting allowed rapid implementation of:

- Flickering lights
- Door events
- Trigger systems
- Environmental interaction
- Sequencer activation

This flexibility accelerated iteration during testing.

7.13 Broader Discussion About Horror Design

One major misunderstanding about horror games is the belief that fear must constantly escalate.

In reality, constant intensity often weakens emotional impact.

Players eventually adapt.

Effective horror therefore depends heavily on pacing contrast.

Quiet moments become important because they allow anticipation to rebuild.

Alien: Isolation demonstrates this clearly.

Large portions of gameplay involve simply listening, waiting, and slowly moving.

The project attempted to replicate this pacing philosophy.

Not every room contains danger.

Some spaces exist purely to create uncertainty.

This uncertainty becomes emotionally exhausting over time.

7.14 Lessons Learned During Development

Several important lessons emerged throughout the research and development process.

Less Visual Information Often Creates More Fear

Reducing visibility increased tension significantly.

Environmental Sound Is Extremely Important

Good sound design frequently created stronger fear than visual effects.

Overusing Horror Effects Weakens Atmosphere

Constant flickering, loud audio, or heavy fog eventually became repetitive.

Moderation produced better results.

Space Design Influences Player Psychology Directly

Small environmental adjustments changed player behavior dramatically.

For example:

- Narrow corridors slowed movement.
- Bright lighting increased confidence.
- Fog increased caution.
- Distant sound increased uncertainty.

These effects occurred even without enemy presence.

8.0 Final Extended Conclusion

Architecting fear in sci-fi horror games involves far more than placing enemies inside dark environments.

Fear emerges through interaction between:

- Space
- Lighting
- Visibility
- Sound
- Navigation
- Environmental storytelling

- Player psychology

Alien: Isolation and Dead Space remain influential because they understand this relationship deeply.

Both games use architecture as emotional design.

Corridors become psychological pressure.

Lighting becomes uncertainty.

Silence becomes anticipation.

The environment itself constantly influences player behavior.

This research also demonstrated that Unreal Engine 5 provides highly effective tools for recreating these experiences.

Emissive materials, volumetric fog, decals, Sequencer cinematics, Blueprint systems, and dynamic lighting can all support horror atmosphere when implemented carefully.

However, technical capability alone is not enough.

Effective horror depends more on restraint and pacing than visual complexity.

Players become afraid not because everything is visible, but because something remains unknown.

Ultimately, the strongest horror environments are not remembered only for what players saw.

They are remembered for how they made players feel while moving through them.

When players hesitate before opening a door, stop moving to listen carefully, or slowly walk through a corridor despite knowing danger may appear at any moment, the architecture itself has successfully become part of the horror.

Appendices

Project Paper Consultation Logbook	
Project Title	The Spectral
Student Name	Lan Zheng Yuan
Student ID	2106416

Year/Semester	Y3S3
Supervisor	Dr. Simon

WEEK 01	
Comments: **Attend to brainstorm session, positions and tasks of all group members confirmed also confirmation for game genre and reference game(s).** **Game Genre: Survive Horror, FPS**	**Supervisor signature:**
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**
WEEK 02	
Comments: **Deliberated with teammates about the game plots, settings, visual styles etc. Then assigning jobs, I'm about to decide and design the game overall visual style with first draw out concept arts.**	**Supervisor signature:**
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**
WEEK 03	
Comments: **Complete assigned tasks, designed couple of the environment concept arts for teammate is working on 3D modelling.** **Completed: Hallway/ Corridor, Door/ Gate, Others' deco designs.**	**Supervisor signature:**

Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**
WEEK 04	
Comments: **Complete designing tasks, environment designed. Concept art passed to teammate for processing modelling progress.** **Completed: Overall Lab's environment and deco's designs.**	**Supervisor signature:**
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**
WEEK 05	
Comments: **Completed designing tasks, monsters'/ hostiles' unit(s) designed. Concept arts had passed to teammate for processing modelling progress.**	**Supervisor signature:**
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**

WEEK 06	
Comments: **Building up level 1 scene's lightning in game for presentation, main menu scene and preparing presentation materials.**	**Supervisor signature:**
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**
WEEK 07	
Comments: **Rough polish of FYP 1's presentation.**	**Supervisor signature:**
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**
WEEK 08	

Comments: **Discussion with teammates to confirm game's overall gameplay flow for building up whole game.**	**Supervisor signature:**
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**
WEEK 08	
Comments: **Keep polishing level's lightning and add on decorations to achieve environment narrative effect.**	**Supervisor signature:**
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**
WEEK 09	
Comments: **Add sound effects and applied sound trigger system in the scene by trigger box tools and blueprint in Unreal.**	**Supervisor signature:**
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**

WEEK 10	
Comments: **Add some environment sound effects for increasing immersive and atmosphere effect in the game.**	**Supervisor signature:**
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**
WEEK 11	
Comments: **No significant progress for presenting in consultation session.**	**Supervisor signature:**
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**
WEEK 12	
Comments: **Redesign overly complicated villain impressions to make it easier for others' task easier.**	**Supervisor signature:**

Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**
WEEK 13	
Comments: **Redo the task assigning due to low inefficient completing tasks assigned.**	**Supervisor signature:**
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**
WEEK 14	
Comments: **Redesigning guns design for replacing the current placeholder.**	**Supervisor signature:**
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**
WEEK 15	

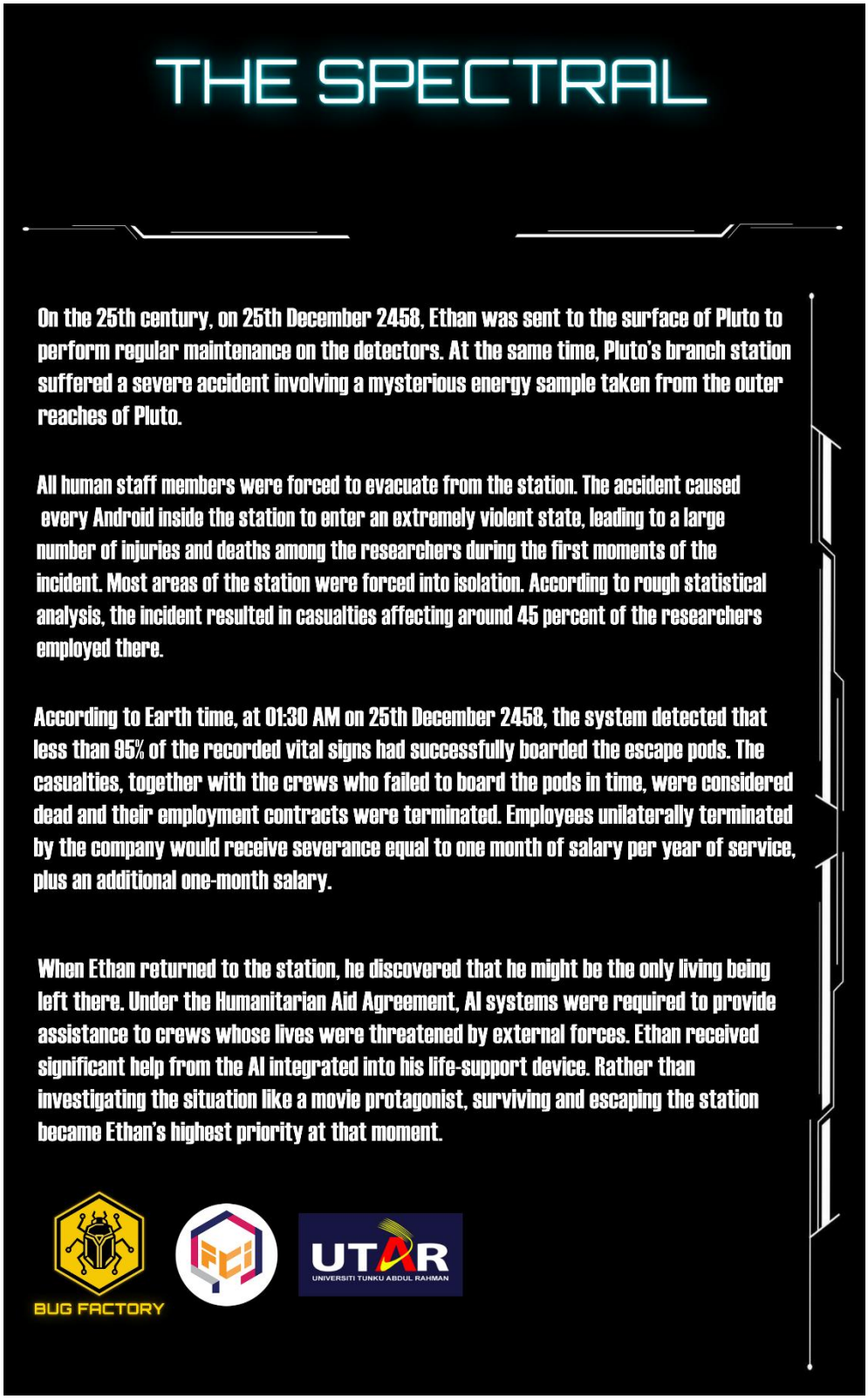
Comments: **Designing the last level scene in concept art for further level layout.**	**Supervisor signature:**
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**
WEEK 16	
Comments: **Redo first two levels' overall layout and increasing number of deco items for further map designing**	**Supervisor signature:**
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**
WEEK 17	
Comments: **Adjusting UI buttons details, preparing and confirming cutscene's resources.**	**Supervisor signature:**
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**

WEEK 18	
Comments: **Doing opening cutscene's storyboard and animating protagonist's movement in Blender.**	**Supervisor signature:**
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**
WEEK 19	
Comments: **Keep doing on UI adjustments.**	**Supervisor signature:**
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**
WEEK 20	
Comments: **Applied the animations edited in Blender in Unreal for showing opening and ending cutscene.**	**Supervisor signature:**

Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**
WEEK 21	
Comments: **Last phase of the polishing, some of the numerical value inside game for presentation.**	**Supervisor signature:**
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**

Poster

Concept Board (Synopsis)


THE SPECTRAL
On the 25th century, on 25th December 2458, Ethan was sent to the surface of Pluto to perform regular maintenance on the detectors. At the same time, Pluto's branch station suffered a severe accident involving a mysterious energy sample taken from the outer reaches of Pluto.
All human staff members were forced to evacuate from the station. The accident caused every Android inside the station to enter an extremely violent state, leading to a large number of injuries and deaths among the researchers during the first moments of the incident. Most areas of the station were forced into isolation. According to rough statistical analysis, the incident resulted in casualties affecting around 45 percent of the researchers employed there.
According to Earth time, at 01:30 AM on 25th December 2458, the system detected that less than 95% of the recorded vital signs had successfully boarded the escape pods. The casualties, together with the crews who failed to board the pods in time, were considered dead and their employment contracts were terminated. Employees unilaterally terminated by the company would receive severance equal to one month of salary per year of service, plus an additional one-month salary.
When Ethan returned to the station, he discovered that he might be the only living being left there. Under the Humanitarian Aid Agreement, AI systems were required to provide assistance to crews whose lives were threatened by external forces. Ethan received significant help from the AI integrated into his life-support device. Rather than investigating the situation like a movie protagonist, surviving and escaping the station became Ethan's highest priority at that moment.
BUG FACTORY
FCI
UTAR
UNIVERSITI TUNKU ABDUL RAHMAN

Name Card

Final Project Title Form

Fill in the information below as detailed as you can after confirming project title.

Project Type:

/

Product Based Project

Student ID	Student Name	Email & Contact no
2300979	Lean Wei Chen	0107978748 weichen.lean@gmail.com
2201848	Lim Yeat Shan	0183813116 yslim717@gmail.com
2106416	Lan Zheng Yuan	0126316997 jestinlan03@gmail.com
	Chia Yi Teng	0197717088 ethanerchai@gmail.com

Research Based Project (tick the appropriate box)

Supervisor: Dr. Simon Ang Kok Yew

Project Title: The Spectral

Project description: -

The Spectral is a first-person sci-fi survival horror game developed using Unreal Engine 5. The project focuses on how environmental design, spatial structure, and visual atmosphere can be used to create sustained psychological tension in horror games. Instead of depending mainly on jump scares or excessive enemy encounters, the project studies how level design itself can influence player emotion and behavior throughout gameplay.

Student Name	Individual Project Scope
Lean Wei Chen	Development of gameplay systems, AI pathfinder of hostile units, some part of the UI setup in game.
Lim Yeat Shan	Development of level design, environmental modelling, and level layout.
Lan Zheng Yuan	Development of most of the concept art designing, decorative props modelling, cutscene animations, and audio editing.
Chia Yi Teng	Development of UI design, promotional materials including posters, business cards, and logo design.

Appendix – Survey (Google Form)

What is your age group? *

- ◯ Under 20
- ◯ 20 - 29
- ◯ 30 - 39
- ◯ 40 and above

How often do you play First-Person Shooter (FPS) or horror video games? *

- ◯ Always
- ◯ Often
- ◯ Sometimes
- ◯ Rarely
- ◯ Never

Do you enjoy playing a psychological horror game that involves jump scares, tension, and stressful situations? *

	1	2	3	4	5	
Not Enjoy	◯	◯	◯	◯	◯	Highly Enjoy

Did the visual appearance of the spectre enemy make you feel uneasy or scared? *

- ◯ Yes
- ◯ No

How effectively did the visual design of the spectre contribute to the psychological horror of the game? *

	1	2	3	4	5	
Not effective at all	◯	◯	◯	◯	◯	Highly effective

Which visual characteristics of the spectre contributed the most to your fear? (You can select more than one) *

- ☐ Transparency / Ghostly appearance
- ☐ Distorted or unnatural physical features
- ☐ Lack of a clear physical form (e.g., floating, shadow-like)
- ☐ Uncanny glowing elements (e.g., eyes)

How much did the visual design of the spectre (such as blending into the darkness or lacking a solid shape) cause you to second-guess what you were seeing or feel paranoid about your surroundings?

	1	2	3	4	5	
Did not make me paranoid at all	◯	◯	◯	◯	◯	Made me highly paranoid and uncertain

Rate how much FEAR and TENSION you felt when the spectre performed the following behaviors. *

	No fear/tension	Mild tension	Moderate fear	High fear	Extreme fear/panic
Stalking (following you slowly or watching from a distance)	○	○	○	○	○
Disappearing / Partial invisibility (blending into the environment)	○	○	○	○	○
Sudden manifestation (appearing directly in front of you)	○	○	○	○	○
Random teleportation (instantly changing locations during a chase)	○	○	○	○	○
Misleading audio cues (hearing sounds that trick your sense of direction)	○	○	○	○	○

Did the inclusion of misleading audio cues effectively trick your awareness and make you feel more threatened?

- ◯ Yes
- ◯ No

Out of all the behavioral patterns, which ONE was the most effective at increasing your perceived threat (making you feel like you were in immediate danger)?

- ◯ Stalking
- ◯ Disappearing / Partial Invisibility
- ◯ Sudden Manifestation
- ◯ Random Teleportation
- ◯ Misleading Audio Cues

Psychological horror often relies on the build-up of tension. Which phase of the spectre encounter caused you the highest level of psychological stress?

- ☐ Anticipation (Knowing the spectre was nearby but not seeing it / Stalking)
- ☐ The Reveal (The exact moment of sudden manifestation)
- ☐ The Chase (Being actively pursued by the spectre)
- ☐ The Aftermath (Losing sight of the spectre and waiting for it to return / Disappearing)