InTransit: Moving Forward Through Anxiety

A Virtual Reality Project for CAVE2,
Good Health and Well-being

Kristina, KC, Campbell
Graphic Design, University of Illinois Chicago, kcamp4@uic.edu

Julian, JM, Mackenzie
Computer Science, University of Chicago, jbm5@uic.edu

Remik, RW, Wisniewski
Computer Science, University of Chicago, rwisni2@uic.edu

CCS CONCEPTS • Insert your first CCS term here • Insert your second CCS term here • Insert your third CCS term here

Additional Keywords and Phrases: Insert comma delimited author-supplied keyword list, Keyword number 2, Keyword number 3, Keyword number 4

ABSTRACT

InTransit is an innovative room-scale virtual reality (VR) application for UIC's CAVE2 that delves into the realm of anxiety, immersing users in the experience of a panic attack within the bustling environment of the Chicago subway system. Inspired by the sustainable goal of Mental/Emotional Wellbeing, the primary objective of InTransit is to educate users about the visceral, bodily symptoms of anxiety and the coping mechanisms available through an engaging and interactive narrative.

Placing users in the shoes of an individual navigating an anxiety attack, InTransit seeks to foster a deep understanding of mental challenges and simulate the bodily experiences of an individual who struggles with anxiety. This immersive approach goes beyond simple storytelling, allowing users to feel the dizziness and the claustrophobia due to the CAVE2's stereoscopic 3D and surround sound system. The user is invited not only into the story but also into the body of the character. Breaking the barrier between the virtual world and the real one, InTransit seeks to stimulate real, physical responses to allow users a glimpse of what an anxiety attack feels like for its victim.

InTransit aspires to go beyond merely acknowledging anxiety as a prevalent term and aims to present it as a genuine, impactful condition. The ultimate goal is to provide a unique, empathetic perspective on mental health, bridging the gap between public perception and the lived reality of those with anxiety. Through its immersive narrative, InTransit aims to contribute to a broader understanding of mental health.

1 INTRODUCTION

InTransit emerges as a pioneering initiative to dismantle the misconceptions surrounding anxiety and mental health. Much like the intricacies of a city grappling with traffic congestion, anxiety weaves a web of symptoms that extend beyond fleeting unease. InTransit is not merely an educational endeavor; it is a virtual journey into the very heart of anxiety, utilizing interactive experiences to represent triggers and symptoms and offering coping mechanisms as a guiding light.

The need to bring awareness to a situation becomes even more important when considering that anxiety disorders affect over 40 million Americans, with a significant portion remaining untreated. InTransit's mission is not only to shed light on the symptoms of anxiety but to immerse viewers in the subjective experience of anxiety itself. Through a unique blend of interactive elements, we aim to represent each trigger and symptom, providing an empathetic journey into the minds of those grappling with anxiety. By doing so, we seek to cultivate a deeper understanding of anxiety, dispelling the notion that it is merely a normative response to stress.

In the realm of mental health awareness, InTransit strives to create a virtual environment that aims to foster an empathetic experience that dispels conceptualization of anxiety as a mere fleeting emotion. The project seeks not only to educate but to prompt a paradigm shift in the

perception of anxiety—encouraging individuals to take their mental health seriously, seek treatment, and, ultimately, create a more compassionate and understanding community.

2 RESEARCH

"Everyone gets nervous, it's normal." is often the response when someone admits to experiencing anxiety. Anxiety is usually defined as feelings of panic, uneasiness, or being on edge. When that feeling of anxiety is constantly occurring, it can be the first sign of an anxiety disorder. Anxiety Disorder is a type of mental illness based on extreme fears that interfere with your daily thoughts and activities. It does not go away as many describe it to be paralyzing and suffocating. The National Alliance on Mental Illness (NAMI) reports that anxiety disorders are extremely common in the United States with over 40 million Americans affected; 10% are teens and 40% are expected to be adults. Only about one-third of this sampled population is receiving treatment.

2.1 PROBLEM

Foremost, awareness of anxiety disorder and mental health struggles are the key to the betterment of the world's mental crises. Many places fail to consider, much less diagnose or prescribe for, mental health concerns. More than ever, due to countless factors of modern life, people are plagued by a struggle only seen inside of themselves. This struggle is isolating, claustrophobic, and is an insurmountable burden without others to lighten the load and medical recognition to validate the conditions.
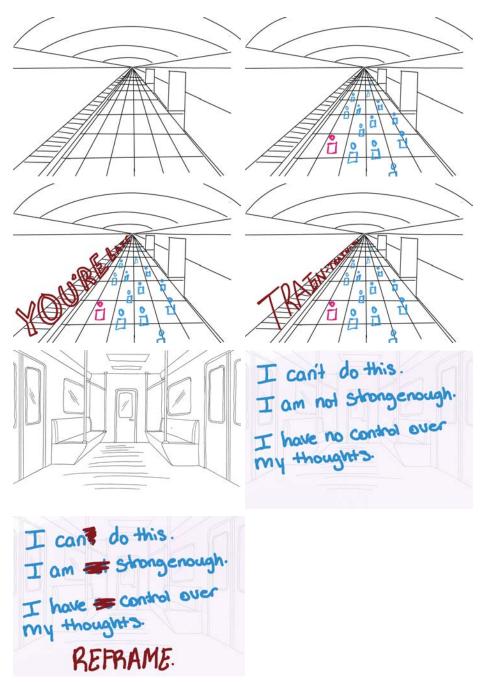
2.2 SOLUTION

Mental health is not without remedy. The most impactful way to combat the mental health crisis is with awareness, recognition, and ultimately, ease of access into treatment paths. The first step to approaching an issue is to understand it, and InTransit seeks to help audiences do just that; by putting the user in the feet, and, using the CAVE2's immersive VR space, the *visceral experiences* of one suffering from an anxiety attack, they can emerge afterward with a greater understanding of the issue and of the ways they can help to mitigate it.

3 PROJECT CONCEPT

The mission of InTransit is to educate viewers about the symptoms and coping mechanisms of anxiety. We strive to accomplish this by using various interactions that represent each trigger/symptom; following up with a coping mechanism. InTransit aims to place viewers inside the body of those with anxiety which will help bring awareness. This allows those experiencing anxiety to be taken more seriously and not just be a part of a "buzzy-word" type concept that diminishes its reality. Hopefully, those will feel more confident in acknowledging their anxiety and seek treatment.

3.1 STORYBOARD

3.2 UNITY DEVELOPMENT

Development for InTransit's virtual experience was done by two programmers, Julian Mackenzie and Remik Wizniewski. Neither had prior knowledge of Unity's systems, and the project was developed in

part with the goal of familiarizing the two of them with game and experience development in an object-oriented environment.

Remik focused heavily on particle systems and audio triggers. Particles had to be used efficiently, as it was unknown the effect that they would have on the CAVE2's performance until the two testing days. Audio, too, was a major variable in development. Altering audio levels and sources in response to the first test's results was a major task in the final weeks of development.

Julian focused on scene composition and event scripting, creating the Reframe minigame at the climax of the experience and providing his voicework to personify the main character of InTransit. Many of his tasks dealt with testing and retesting collisions, event trigger zones, scene changes, and fine tuning movement speed and interaction colliders on interactable objects. The audio triggers and voicelines he was responsible for came about in the final week of testing–mere hours before the deadline–at the suggestion of the instructors. They replaced an on-screen subtitle narration system which many hours had gone into developing, but the results were well worth the sacrifice.

3.3 SCENES

The project consists of four main scenes. In the initial scene of the program, users step into a train platform where they are greeted by typography depicting people represented as "i." The ambient background noise simulates a bustling crowd, creating a sense of anxiety. Positioned to the right, a clock catches the user's attention, and through audio dialogue, they are encouraged to approach it. However, an undercurrent of anxiety is introduced, manifested by a heavy heartbeat audio cue. As the user enters an audio trigger zone near the clock, a train arrives, and they are prompted to board. The clock ominously displays the word "late," intensifying the user's unease.

Transitioning to the second scene, users find themselves on a train platform, surrounded by an atmosphere laden with negative emotions. The journey through the train becomes an exploration of stress and anxiety in social situations. Amidst the clamor of train chatter, users must locate their seat, with typographic elements on the screen providing interactive points for engagement. The overarching theme is to vividly depict the challenges of navigating social anxiety. Once the user finally settles into their seat, they progress to the next phase of the experience.

The third scene introduces a reframing mini-game, urging users to shift their perspective and embrace positivity. This encourages restructuring, prompting users to reframe their thoughts and emotions. It serves as a pivotal point in the journey, preparing them for the shift in the narrative.

The final scene brings the user back to the train station but with a very different contrast in the environment. The audio undergoes a transformation, emphasizing positivity and tranquility. The familiar clock still displays the word "late," but this time, it is accompanied by positive words of affirmation. The user, having successfully navigated through anxiety-inducing scenarios and reframed their mindset, now

experiences a scene free from anxiety. This serves as a powerful conclusion, highlighting the potential for positive change through virtual reality experiences centered around mental well-being.

3.4 RESULTS

InTransit aims to yield a transformative journey resulting in a well-rounded and accurate representation of anxiety within the virtual reality environment. The incorporation of typographic elements, audio triggers, and a reframing mini-game has been particularly effective in guiding users through a nuanced exploration of anxiety triggers and coping mechanisms.The positive outcomes observed in user responses signify the potential of InTransit to contribute significantly to mental health awareness, encouraging a broader societal conversation about anxiety. As the project looks towards future iterations and broader dissemination, these results affirm the viability of technology-driven solutions in addressing mental health challenges and fostering a more compassionate and understanding society.

4 CHALLENGES

Many of the challenges were related to the spacial components of the experience. The project was developed on laptops with a simulated version of CAVE2, but the actual CAVE2 system was designed with sophisticated head tracking and appears much larger and much more in-your-face than the virtual environment. Because of this, as well as only being allotted two ten-minute testing days, developing InTransit included quite a bit of guesswork in the realm of user experience, scene composition, scale, and scope.

Another obstacle was how the team dealt with event triggering. Sometimes, if the player was unlucky enough to be knocked backward by obstacles in the experience, they would reactivate events, causing voiceline repetition and overlapping. Solving this for each problematic event's source was an arduous process that required several hours of code rewriting.

We encountered an additional challenge in managing particle systems for rendering typography. During scene creation, determining the optimal number of particles to evoke anxiety symptoms for users without causing lag in the CAVE2 system posed uncertainty.

Furthermore, dealing with audio was another obstacle. Navigating the audio presented another hurdle. The challenge extended to understanding how audio event triggers could effectively induce anxiety effects, adding complexity to the task of determining the appropriate implementation for achieving the desired impact.

5 CONCLUSION

InTransit has emerged as a virtual reality program for understanding a user's experience of having social anxiety. Rooted in the sustainable goal of Mental/Emotional Wellbeing, InTransit immerses users in the experience of a panic attack. By embodying the challenges faced by individuals grappling with anxiety, the project employs the CAVE2's technology to evoke genuine emotional and physical responses,

breaking down the barrier between the virtual world and reality. Through the four main scenes, InTransit guides users through the complexities of anxiety. The project ensures an experience of representation with the impact that anxiety has. InTransit not only educates but seeks to prompt a paradigm shift in how anxiety is perceived, encouraging individuals to prioritize their mental health and creating a more compassionate community. As the project moves forward, it holds the potential to contribute significantly to mental health awareness and treatment, showcasing the power of technology driven solutions in addressing pressing societal issues.

ACKNOWLEDGMENT

References

Anxiety disorders. NAMI. (2017).
https://www.nami.org/About-Mental-Illness/Mental-Health-Conditions/Anxiety-Disorder
s