

The ordinary & the **EXTRA ORDINARY**

AR - BASED GRAPHIC NOVEL

Banasmita Das

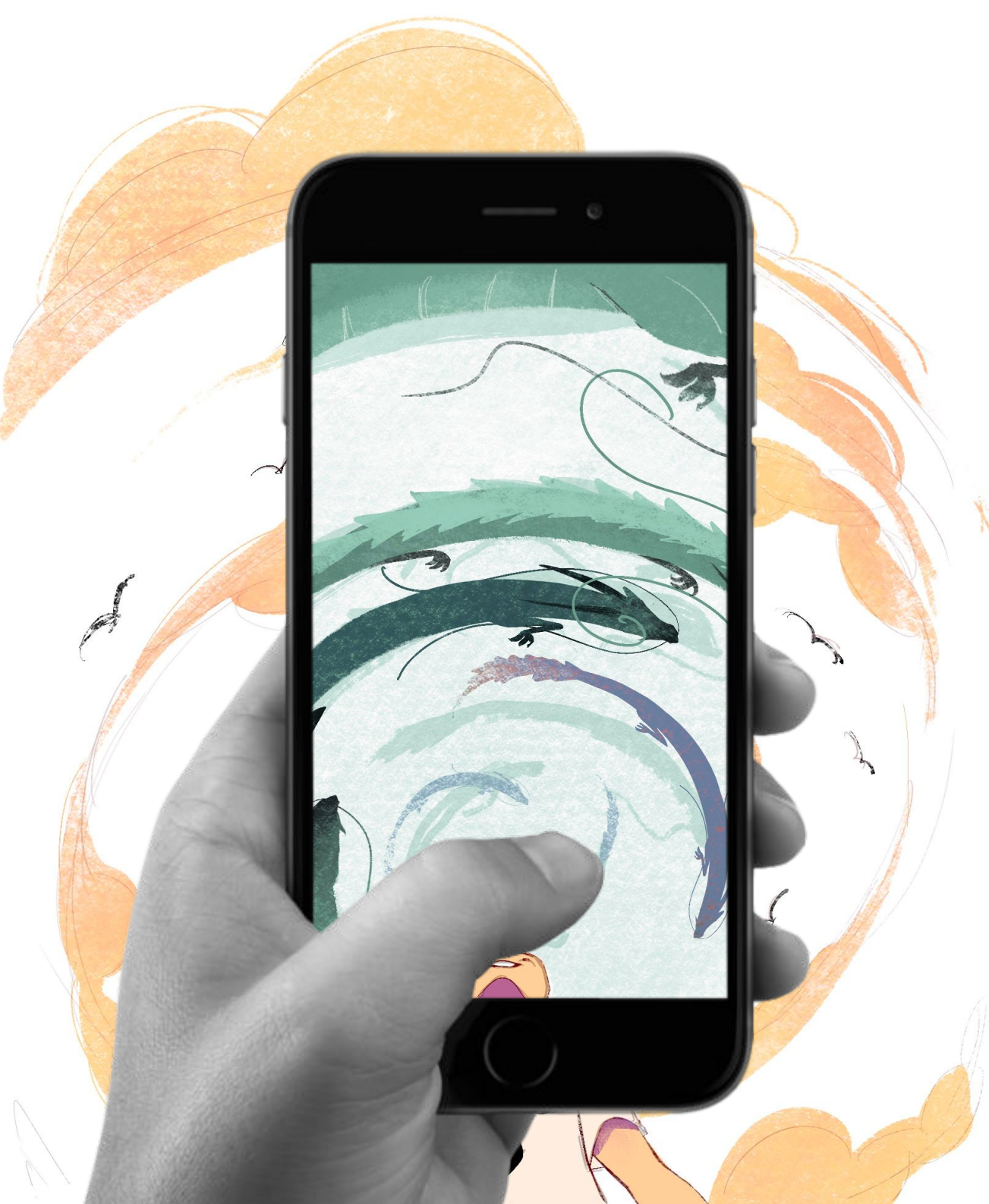
22M2275

Guided by Prof. Jayesh Pillai
M.Des Communication Design
IDC School of Design, IIT Bombay

IDC School of Design
अभिकल्प विद्यालय



IIT Bombay



Approval Sheet

This is to certify that the project report titled 'The Ordinary and the Extraordinary' by Banasmita Das, Roll no: 22M2275 is approved for partial fulfillment of the requirements of the the Master of Design Degree in Communication Design from IDC School of Design, IIT Bombay.

Project Guide :

Digital Signature
Jayesh S. Pillai (i15316)
04-Jul-24 12:32:44 PM

External Examiner :



Internal Examiner :

Digital Signature
Prasad Bokil (10001740)
02-Jul-24 03:39:58 PM

Chairperson :

Digital Signature
Avinash Shende (10001790)
03-Jul-24 08:49:38 AM

30.11.23

Declaration

I declare that this written document represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea, data, fact or source in my submission. I understand that any violation of the above will be cause for disciplinary action by the institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

A handwritten signature in black ink, reading "Banasmita Das", written in a cursive style.

Banasmita Das

22M2275

M.Des Communication Design

IDC School of Design, IIT Bombay.

November 2023

Acknowledgement

I want to convey my heartfelt appreciation to my guide, Prof. Jayesh Pillai for his consistent guidance and unwavering support throughout the duration of this project. Additionally, I want to express my sincere gratitude to Prof. Sudesh Balan and Prof. Prasad Bokil for their valuable insights and feedback during the design process. Their constructive criticism and suggestions played a pivotal role in refining the project at every stage. I would also like to acknowledge my peers for their contributions and feedback on this project. Their input has been instrumental in its development.

Lastly, I express my gratitude to all those who supported and encouraged me throughout this project, including my family and loved ones. Their unwavering belief in my abilities has served as a constant source of motivation.

Contents

Abstract	v
1. Introduction	1
2. About the project	3
3. Background Study	4
3.1. Studying existing works	
3.2. Takeaways	
4. Concept	7
5. The story	8
3.1. Log line	
3.2. Plot summary	
3.3. Screenwriting	
6. Character Design	10

7. Storyboarding	11
7.1. Rough storyboarding	
7.1.1 Book version - Thumbnailing to assess layout	
7.1.2 AR version - Thumbnailing to assess overlay	
7.2. Storyboarding the spreads (Book version)	
7.3. Artstyle	
8. Concept trials in Unity	20
8.1. Initial trial	
8.2. Second trial	
8.2.1 Testing	
8.2.1.1 Issues identified	
8.2.1.1 Methods to resolve	
9. Further work	24

References

Abstract

Augmented reality (AR) is a technology that overlays a computer-generated image onto what a user sees in the actual world, forming a combined view. AR holds the promise of transforming the art of storytelling through the creation of immersive and interactive experiences in the real world. Incorporating AR for storytelling opens new avenues of creative expression, providing an immersive and interactive narrative experience.

This exploratory project aims to create a storytelling experience with marker-based Augmented Reality (AR). The narrative initially follows a young boy's playful escapades, anticipating the consequences of his academic struggles as he delays returning home. In the AR adaptation, the story transforms, offering insight into the boy's altered perspective.

The project goal is to leverage AR to unveil a distinct version of the story, clarifying the original narrative. The scope of this project includes exploring various methods such as motion and sound design, as well as portal effects, to enhance the storytelling experience.

1. Introduction

Augmented Reality is a technology that integrates computer-generated information, such as images, sounds, or other data, into the real-world environment. It enhances the user's perception of the real world by overlaying digital content onto it. This augmentation is typically experienced through devices like smartphones, tablets, smart glasses, or headsets. AR technology aims to blend the virtual and physical worlds, providing users with an enriched and interactive experience that combines the benefits of both realms.

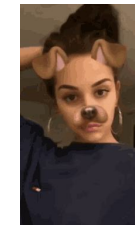
AR finds applications in several domains, including Education & training, Gaming & entertainment, Marketing & advertising, Retail & E-commerce, Navigation & wayfinding, Art and Design, Tourism & cultural heritage, Social media filters, etc.

Education - solAR app



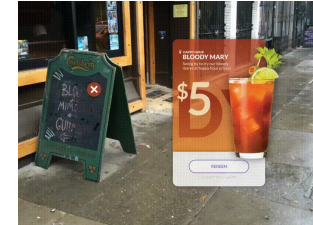
[Image source](#)

Social media filters



[Image source](#)

Advertisement



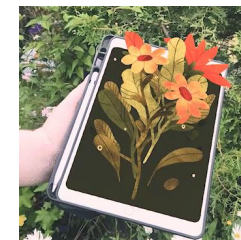
[Image source](#)

Super Mario Bros Recreated as Life Size Augmented Reality Game



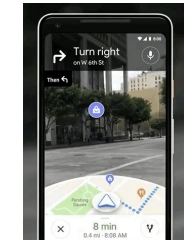
[Image source](#)

Art



[Image source](#)

Navigation & wayfinding



[Image source](#)

Augmented Reality has found significant application in the domain of storytelling as well. Incorporating AR for storytelling opens new avenues of creative expression and presents opportunities to create a narrative that offers flexibility in how the storyline unfolds based on audience interaction. It offers a compelling fusion of the physical and digital worlds, providing an immersive and interactive narrative experience. Thus, by making stories interactive, immersive and personalized, AR can help to create a more engaging storytelling experience for the audience

Picturebooks



[Image source](#)

Art exhibitions and installations

Mirages & Miracles (Art exhibition by Adrien M & Claire B)



[Image source](#)

Wonderscope: AR app that has voice recognition and interactive stories



[Image source](#)



[Image source](#)

2. About the project

AIM/OBJECTIVE

The aim of the project is to explore storytelling through Augmented reality. The objective is to use AR to unveil a different version of the same story that would clarify the original narrative, which might otherwise remain ambiguous or 'unfinished'.

The scope of the project includes using additional features such as animation, sound design and portal effect to enhance the storytelling experience.

3. Background study

3.1 Studying existing works

In order to understand and experience how AR based graphic novels work, I examined few examples, including works created by students from previous years and video demonstrations available online.

a.



When it Rains

Storybook by Padmasree M M

- Layered components - parallax effect
- Certain elements animated
- Sound design and voiceover
- Portal effect

b.

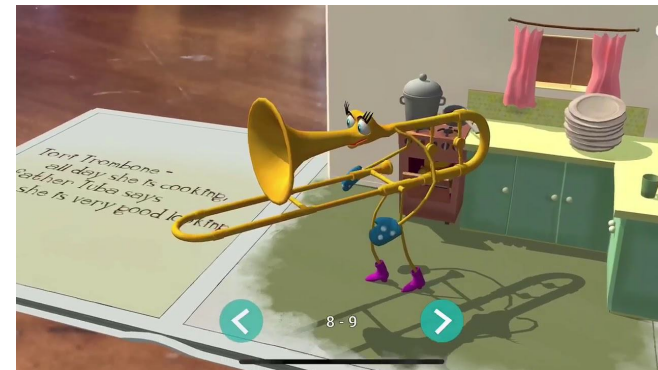


First woman

Interactive graphic novel by NASA

- QR code markers
- Interactive 3D objects and environments simulated

b.



House on Melody Street

AR picturebook

- AR picture book with text overlaid on one page and 3D elements in the other

d.



Little Red Riding Hood

Interactive AR picturebook

Interactive AR picture book where the reader can interact with the elements in the book such as adding colours on cue.

e.



Mong

AR picturebook

- AR picture book on domestic violence and effects on a child.

3.2 Takeaways

The graphic novels/picture books with AR have two major aspects in common:

Techniques used for enhancing the experience

Animation

2D/3D elements

Voice/sound design

Parallax/portal effect

Interactive elements

Features used for engaging with the content

Information related to story

Information unrelated to story

Gamified experience

Scaling of elements for better visualization

There aren't many graphic novels/picture books that fully integrated AR as a storytelling medium, where it becomes an integral part of the narrative itself. **Thus, this motivated me to delve into this domain and explore the possibilities.**

4. Concept

The concept involves **two interconnected yet independent versions of the same story**, offering a unique experience in both individuality and connection. The idea is to have the AR version clarify the original narrative of the book version, which might otherwise have a hint of ambiguity, thus calling for the connection with AR.

Book version

Depicts typical scenes of protagonist on his way back home. The graphic novel will have little to no text.

AR version

The POV of the protagonist is depicted as he visualizes the objects and people around him differently. Sound and animation will come into play.

5. The story

The story is that of a young boy who uses his creative imagination to view the ordinary world around him somewhat extraordinarily!

5.1 Log line

A young student's playful escape from bad grades leads to an enchanting journey through his vivid imagination, but soon he had to confront the very thing he was escaping from.

5.2 Plot summary

After receiving disappointing grades on his report card, a young student chose a different and longer path home, fearing his parents' reaction. As he walked, he skipped, hopped, and occasionally laughed, leaving onlookers and passersby bewildered by his behavior. Little did they know that he possessed an extraordinary imagination, capable of turning ordinary surroundings into captivating fantasy worlds. However, the playful escapade was short-lived, as he soon had to confront the very thing he had been dreading: his parents' response to his grades.

5.3 Screenwriting

Because the graphic novel is intended to contain minimal text, the screenwriting focused mainly on framing the scenes and the panels.

- The sun bathed the streets and trees in a warm afternoon glow. *The trees are swaying gently with the wind.*
- At the primary school, the final bell chimed, signaling the end of the day. *Loud bold letters demonstrated the ringing sound with the audio.*
- Students spilled out, filling the air with lively conversations and laughter. *Audio of children talking plays in. Small animations such as movement of the heads, bodies swaying shown.*
- Vyed stood by the school's main exit, clutching a crumpled piece of paper. *The audio gradually becomes muted to center focus on Vyed as the main character.*
- He nervously examined his report card, his expression troubled. His grades were not so great, save for the solitary "O" he received in art and craft.
- Sighing heavily, he reluctantly made his way through the crowd of cheerful students. *The crowd turns into black shapes, symbolizing that in Vyed's perspective, they are just figures that he doesn't connect with or are unfamiliar to him.*
- Vyed walked to the exit gate and gazed at the sky, taking in the scene around him, eyes a bit dazed. *The buildings turn into mountains and Vyed could see dragons flying in the sky.*
- A faint smile crossed his face as he turned right, heading toward the setting sun.
- Someone called his name from behind, "Vyed! Oi, where are you going? Your house is this way!" but their voice was drowned out by the noise, and Vyed continued walking. *A muffled voice of a figure is heard calling out to Vyed. Vyed follows after the dragons.*
- He wandered into a narrow street, lined with walls on both sides and houses. *The objects and surrounding transforms into aesthetic elements.*
- Vyed noticed a house under construction with stacks of bricks outside. *There is an open field in front of him with tall rocks lined up.*
- Playfully, he climbed the stack of bricks, till he reaches the top and raises his fists in victory. *He jumps on each rock, smaller to taller until he reaches the top. He feels like a champion, almost reaching the sky.*
- Suddenly, a furious voice from below yells at him, "Hey! Get down, you brat!". *Suddenly a huge monstrous creature appears from behind with a loud growl.*
- Startled, Vyed lost his balance, tumbled off the wall, and fell on the other side of the wall. *Vyed falls down a deep, dark abyss with a terrified expression on his face.*
- Disoriented for a moment, Vyed lifts up his head from the ground and his gaze falls on a puddle in front of him. He stares in awe. *Specks of reflected light fall on his face as Vyed lifts up his head. He stares in awe at the incredible scene in front of him: A massive ocean with huge rock formations in between and whales flying in the sky with the clouds.*
- Dusting himself off, he breaks into a run towards the puddle, bent his knees, crouches low, and jumps across it. *He runs towards the beautiful ocean and makes a huge jump towards the horizon, flying along with the whales in the sky.*
- Triumphantly, he raised his hand in victory, bewildering a passing man.
- As he realized he was near his house and that the sun had set, Vyed hurried home. *As he hurries, the elements transform from bright aesthetic designs to darker themes, representing the shift in Vyed's perspective.*
- Stealthily, he tried to open the gate and tiptoed through the front yard. *The house presents itself as a looming, eerie location, reflecting Vyed's reluctance to be in its vicinity.*
- With a cautious push, he gently creaked open the door and peered inside nervously.
- His mother, wearing a disapproving expression, stared down at him. *A creature, baring its fangs at him, stood in the middle of a battered room with stone walls and old wooden floors. It clearly appeared to be the gaoler of the dungeons behind.*
- Vyed handed his grade sheet to his mom as if in response to her silent demand. *He handed the piece of paper towards the outstretched hand of the creature.*
- His mother's disappointment was evident as she looked at the grades. *The creature emits an angry noise as it takes in the content of the paper. Vyed's nervousness was palpable.*
- She gestured toward his room, instructing him to go there. *It points towards one of the dungeons, one that is very familiar to Vyed.*
- Dejected, Vyed entered his room and threw his backpack onto the bed. *Vyed proceeds with deliberate steps toward the prison, within which he finds only dank walls, a weathered cot, a battered table, an unsteady chair, and a modest collection of tattered books filled with inscrutable text in ancient languages that Vyed couldn't understand.*
- Above the table, a haphazard assortment of artwork has been carelessly taped to the wall. It featured peculiar creatures and enchanting landscapes, including images of whales, mountains, and fish soaring through the skies.
- He pulled his chair to the study table and sat down, retrieving an old sketchbook from under his math and science textbooks. *He pulls out the creaky chair and retrieves an old sketchbook from underneath the pile of dusty old books.*
- Turning to a work-in-progress page, he began reworking it with a smile on his face. He added a dragon, flying atop the mountains and trees. *Each of his artwork comes to life. With elements floating out of his sketches and encircling him as he draws, putting a soft smile of Vyed's face.*

6. Character design



Vyed, an 11-year-old character, possesses a lanky frame that adds a distinctive quality to his appearance. His long face is complemented by a buzzed haircut, framing his features. Vyed is typically seen wearing an unkempt school uniform consisting of a white shirt, black shorts, and a tie, accompanied by a black backpack.

In terms of personality, Vyed is characterized by a shy and introverted demeanor, yet his innate curiosity adds depth to his nature. At times, he may come across as aloof, engrossed in his own thoughts. However, beneath this exterior, Vyed harbors an extraordinary creative imagination that sets him apart. A noteworthy quirk of Vyed is his ability to get lost in thought, effortlessly transforming ordinary surroundings into captivating fantasy worlds. This unique quality adds a layer of intrigue to his character, making him a compelling and imaginative presence within the narrative.

7. Storyboarding



7.1 Rough storyboarding

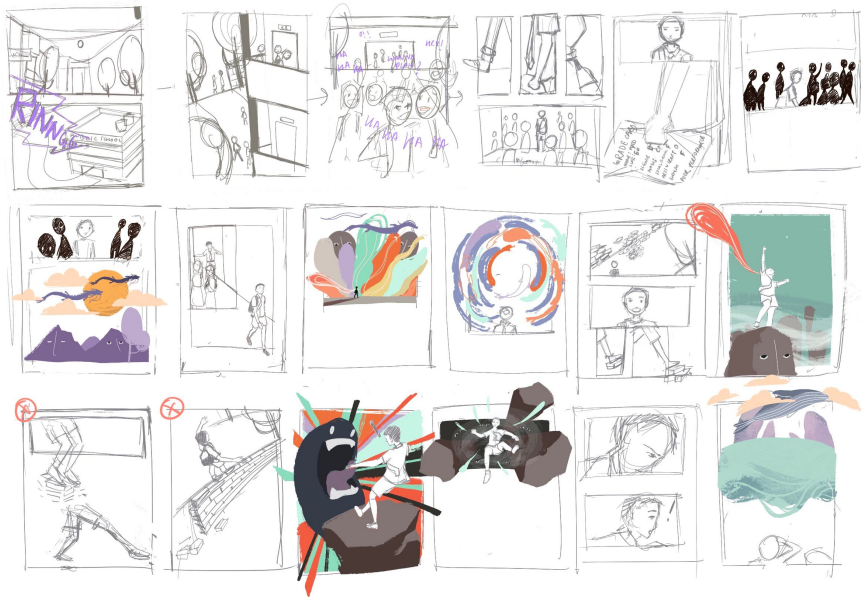
To evaluate the arrangement of panels in the book rendition and the integration of digital elements in the AR iteration, I made some thumbnail sketches following the screenwriting process.

7.1.1 Book version - *Thumbnailing to assess layout*

This was done by rapidly sketching each panel's visual representation. An iterative approach was followed involving frequent redraws and analysis.

Considered factors:

- Enhancing panel interest and dynamism
- Effective overlay of AR elements
- White space
- Panel sizes, etc



7.1.2 AR version - *Thumbnailing to assess overlay*

This was done to visualize how each AR element would appear and overlay atop the panels. A creative and explorative approach was followed.

Considered factors:

- Shapes somewhat resembling elements in book version
- Protagonist pose remains same
- Using vivid colours
- Exaggerating scenes

Book



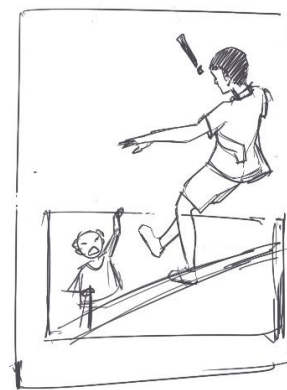
Vyed walks towards the exit and gazes at the sky, taking in the scene around him, his eyes a bit dazed.

AR



The buildings turn into mountains and Vyed, mesmerized, could see dragons flying in the sky.

Book

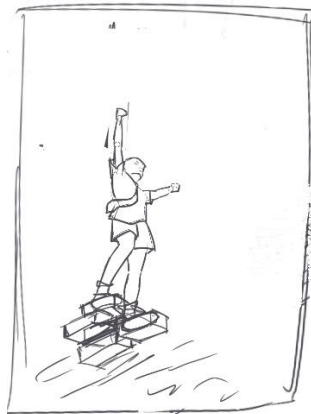


Suddenly, a furious voice from below yells at him, "Hey! Get down, you brat!"

AR



Suddenly a huge monstrous creature appears from behind with a loud growl.



Playfully, he climbed the stack of bricks, till he reaches the top and raises his fists in victory.



He jumps on each rock, smaller to taller until he reaches the top. He feels like a champion, almost reaching the sky.



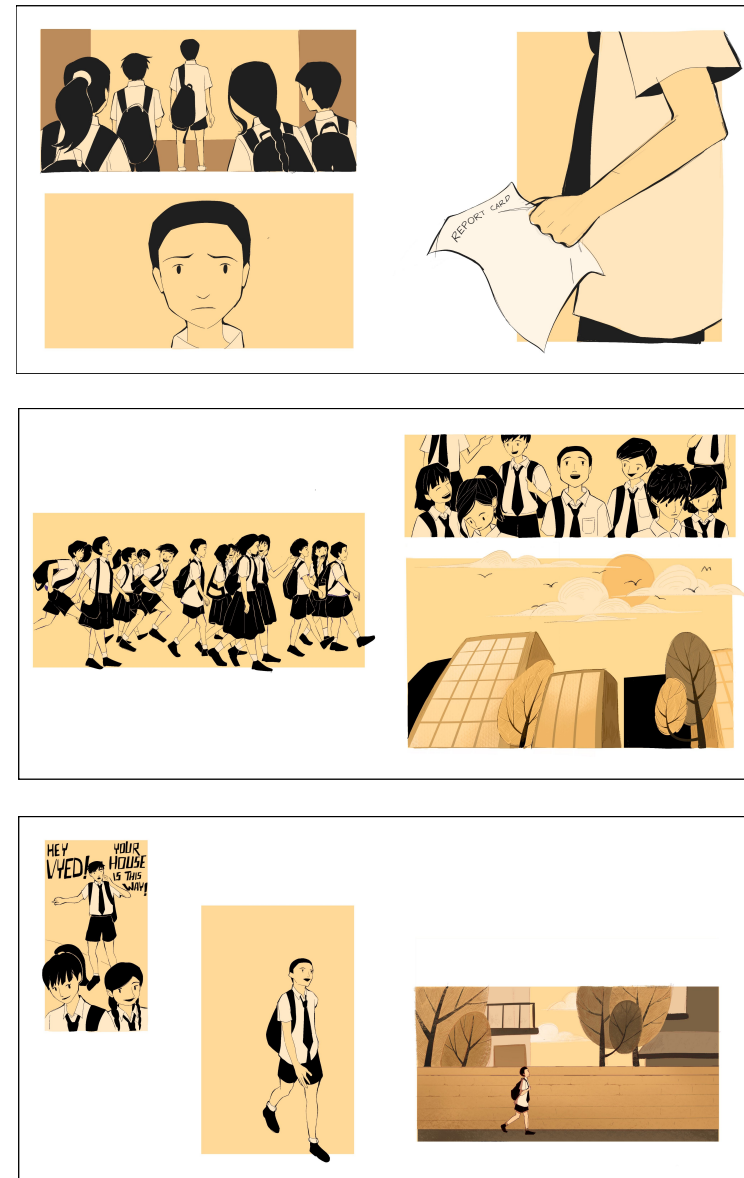
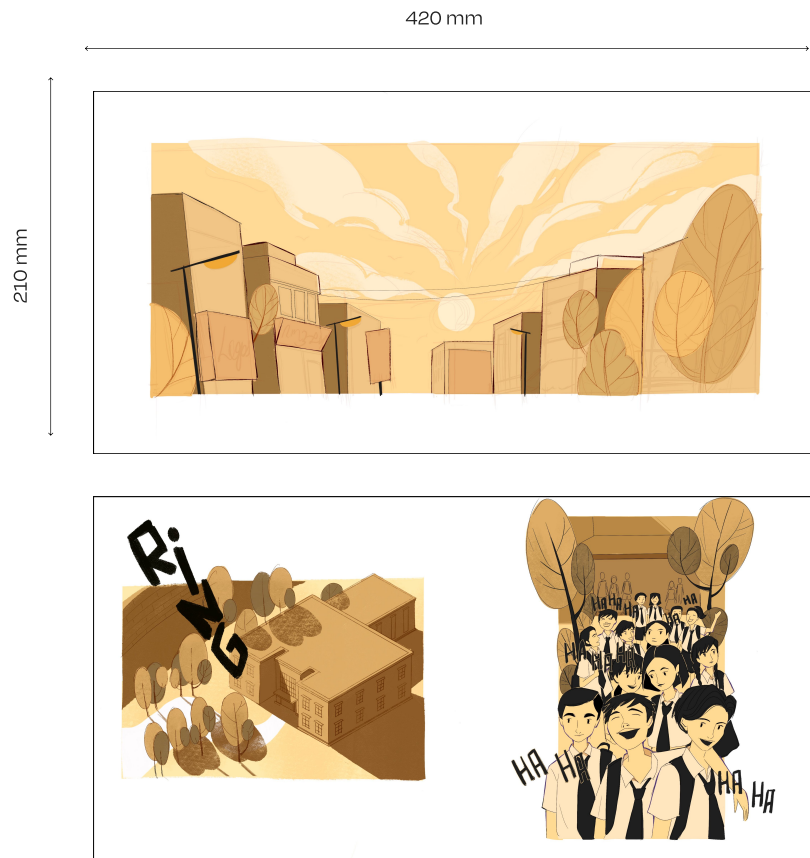
Vyed lifts up his head from the ground and his gaze falls on a puddle in front of him. He stares in awe.

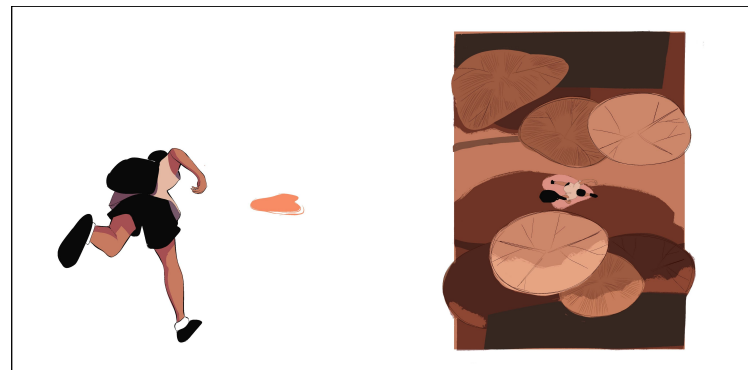
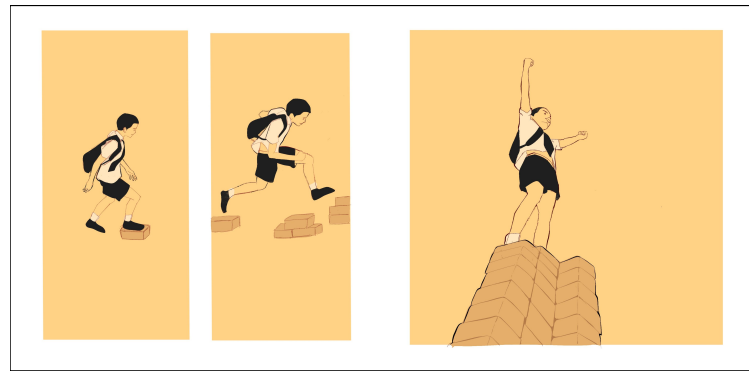
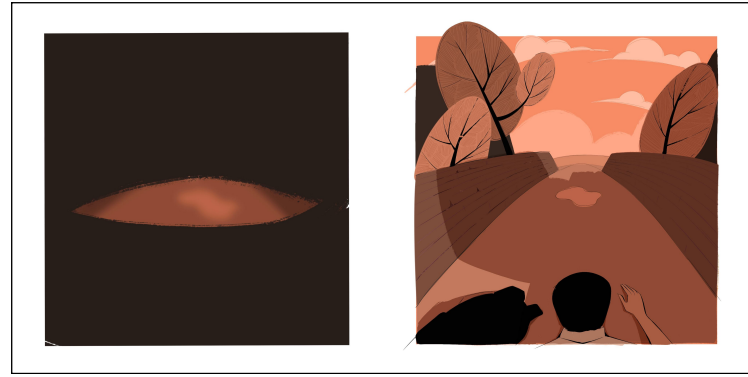
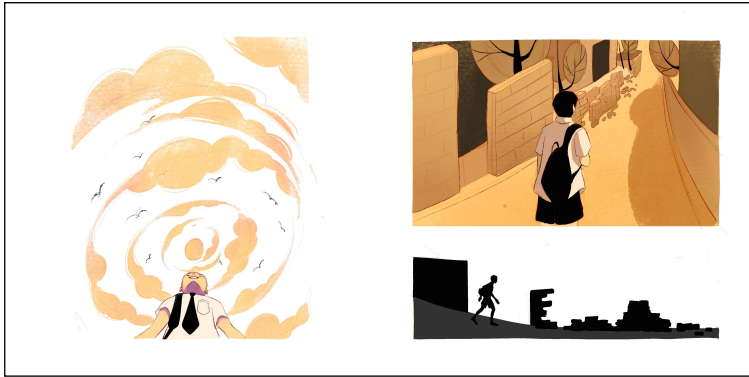


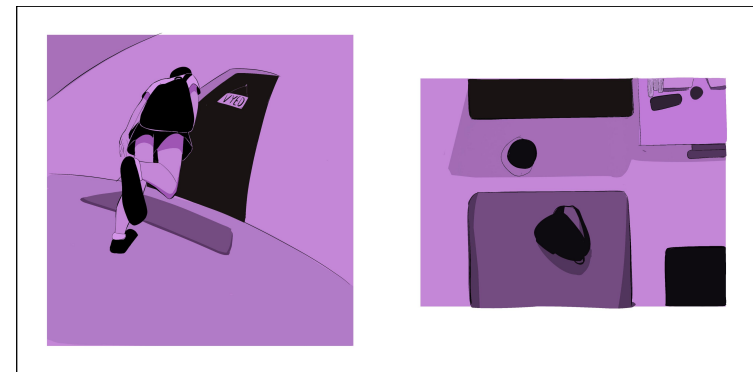
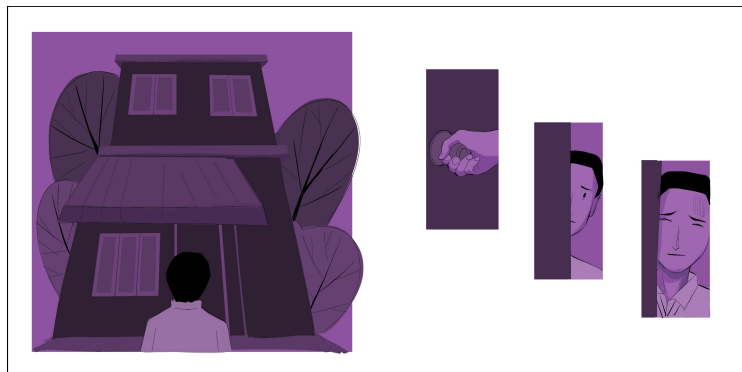
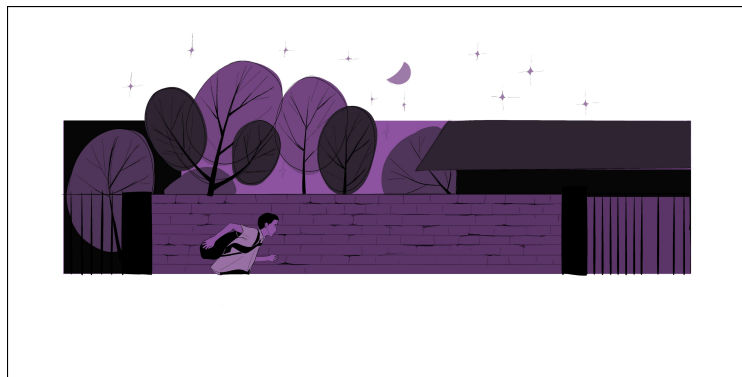
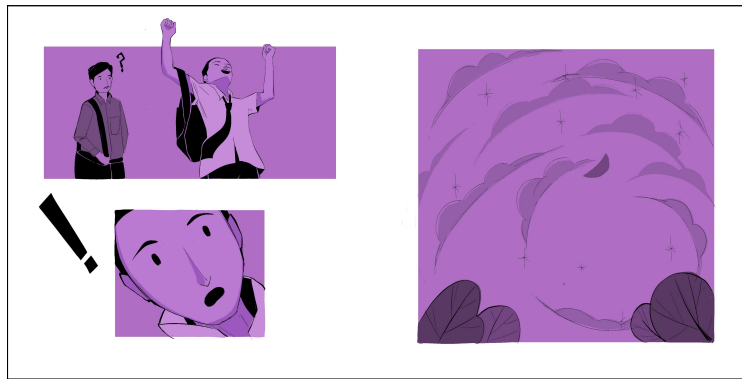
He stares in awe at the incredible scene in front of him: A massive ocean with huge rock formations, and whales flying in the sky.

7.2 Storyboarding the spreads (Book version)

The panels feature a monochromatic design with a limited colour scheme to represent the progression of time. Put simply, to convey the passage of time as Vyed remains busy with his escapades, the panel colours will transition from yellowish tones to shades of purple, indicating the transition from daytime to sunset.







Work in progress

7.3 Artstyle

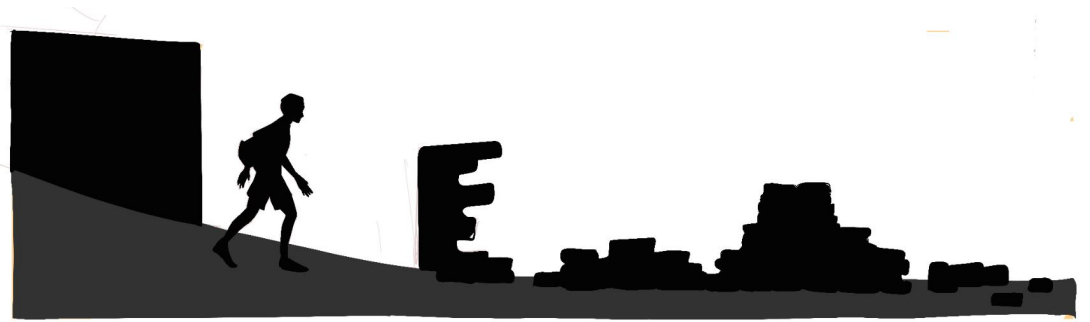
The world Vyed **is in**



and the one he **imagines**



The world Vyed is in



and the one he imagines



The world Vyed is in



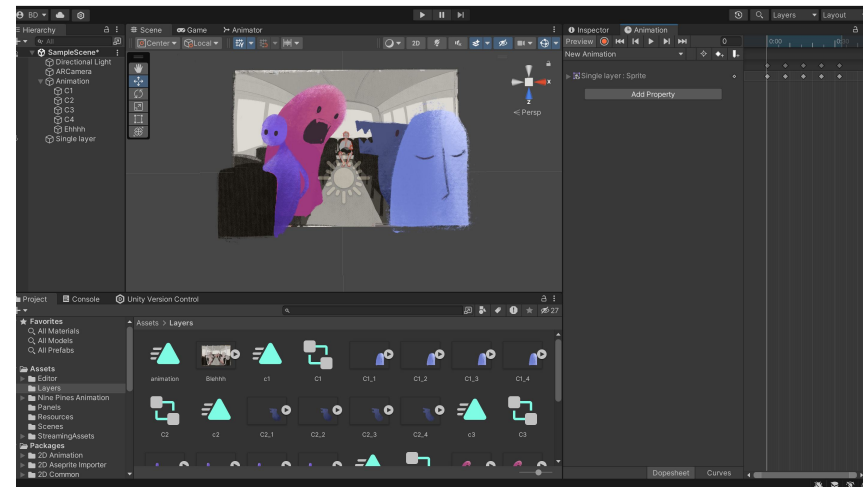
and the one he imagines



8. Concept trials in Unity

8.1 Initial trial

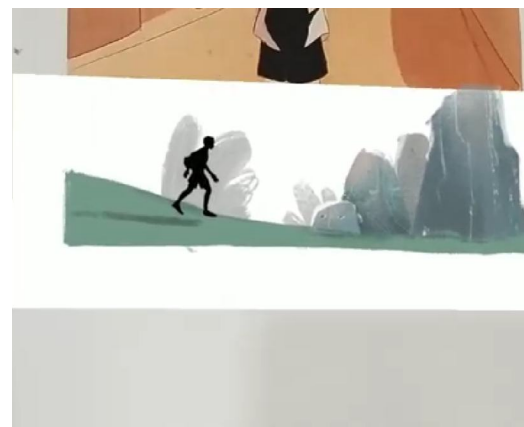
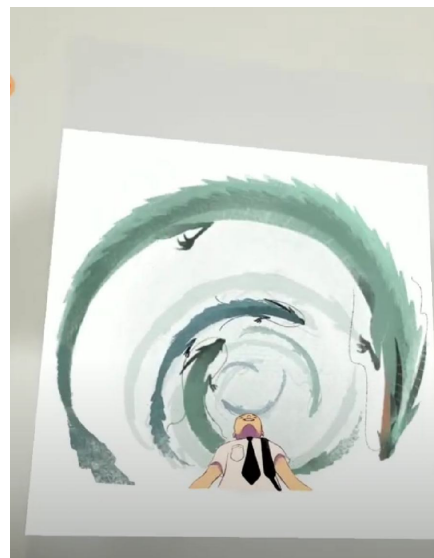
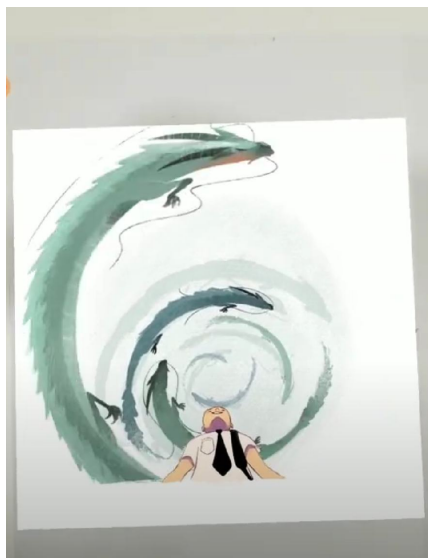
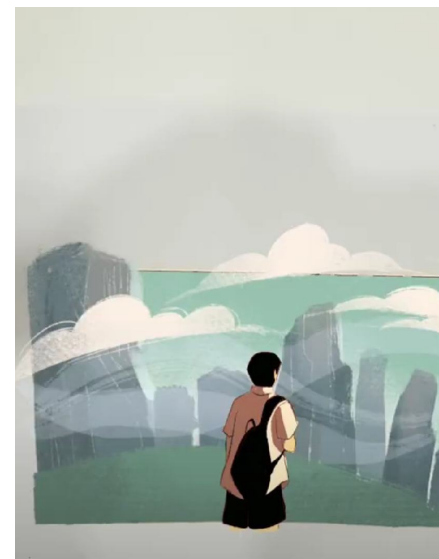
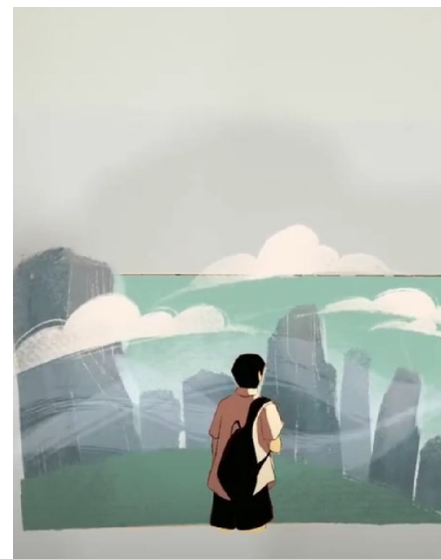
During the initial stages of developing my story, the narrative took a different turn. The opening scene featured Vyed traveling on a bus on his way home and in the AR version, the bus passengers were portrayed as monsters in his imagination. This experimentation was conducted in Unity as a **trial to grasp the working of the software and to figure out the animation process within it.**



Snapshots



Rough print of book



8.2.1.1 Issues identified

There were some issues that were observed while testing:

- Appearance of the AR overlayed elements seems too abrupt, taking away from the experience of the story
- The 2D layers appear to be floating, which seems 'weird'
- When panel background is white, it stands out too much rather than blending with the page.

8.2.1.2 Methods to resolve

The following solutions can be considered to address the respective issues identified:

- Incorporating effects to control how the elements appear, like gradual fading in or subtle popping up, enhances the visual appeal and engagement of the presentation.
- Coding a portal effect that would envelop the 2D layered elements
- Removing the background in the AR version (but this might cause the visibility of the book panel elements). To be considered.

9. Further work

Initially, I planned to conclude the physical version of the story midway, leaving it at a cliffhanger, and then prioritize the AR version due to time constraints. However, following feedback from my guide and faculty members during the previous stage presentation, I revised my approach. I decided to first complete the physical version of the graphic novel entirely and include only a few panels in the AR version. Subsequently, I would continue to develop the AR version and complete the project during DES. This approach allows me to maintain the quality of work and explore the intended sound design, animation, and portal effects in AR.

Thus, my next steps involve finalizing the physical version of the graphic novel to ensure the story doesn't feel cut short or interrupted. This way, the reader can have a comprehensive understanding of how the narrative unfolds. Simultaneously, I will create the AR version for select panels, offering the reader a glimpse into the augmented reality interpretation of the story.

References

Text references

What is Augmented Reality

www.investopedia.com

Storytelling with Augmented reality

<https://www.onirix.com/storytelling-with-ar/>

Visual references

First woman

<https://www.nasa.gov/specials/calliefirst/>

Mong

<https://www.behance.net/gallery/160636921/MNG-AR-ILLUSTRATED-BOOK>

AR artstyle inspiration

<https://chaosego.com/>

App references

solAR

https://play.google.com/store/apps/details?id=com.ar.solar&hl=en_US&pli=1

First woman

<https://www.behance.net/gallery/160636921/MNG-AR-ILLUSTRATED-BOOK>

Wonderscope AR

<https://apps.apple.com/in/app/wonderscope-ar-stories/id1659432042>

Video references

Little Red Riding Hood AR book

<https://www.youtube.com/watch?v=F2ieduC3wCI>

The House on Melody Street

https://www.youtube.com/watch?v=NT_YBTyMN_4

Super Mario Bros Recreated as Life Size Augmented Reality Game

<https://www.youtube.com/watch?v=QN95nNDtxjo>

Mirages and miracles

<https://www.youtube.com/watch?v=6Ddnd7JOTRk>