ART DIRECTION AND 3D PROPS DEVELOPMENT FOR THE ANIMATED SHORT FILM "DHOWA"

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Multimedia and Creative Technology.

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DAFFODIL INTERNATIONAL UNIVERSITY

DHAKA, BANGLADESH

JANUARY, 2025

APPROVAL

This Project titled "Art Direction And 3D Props Development for The Animated Short Film Dhowa", submitted by Talat Mahmud Hridoy to the Department of Multimedia and Creative Technology, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Multimedia and Creative Technology and approved as to its style and contents. The presentation has been held on 11 January, 2025.

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DECLARATION

I hereby declare that, this project has been done by me under the supervision of **Apurba Ghosh, Assistant Professor, Department of Multimedia & Creative Technology** Daffodil International University. I also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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ACKNOWLEDGEMENT

First, I express my heartiest thanks and gratefulness to almighty God for His divine blessing makes me possible to complete the final year project successfully.

I really grateful and wish my profound indebtedness to **Apurba Ghosh**, **Assistant Professor**, Department of Multimedia & Creative Technology, Daffodil International University, Dhaka. Deep Knowledge & keen interest of my supervisor in the field of 3D Animation to carry out this project. His endless patience, scholarly guidance, continual encouragement, constant and energetic supervision, constructive criticism, valuable advice, reading many inferior drafts and correcting them at all stage have made it possible to complete this project.

I would like to express my heartiest gratitude to **Md. Salah Uddin, Assistant Professor and Head,** Department of Multimedia & Creative Technology, for his kind help to finish my project and also to other faculty member and the staff of Multimedia & Creative Technology department of Daffodil International University.

I would like to thank my entire course mate in Daffodil International University, who took part in this discuss while completing the course work.

Finally, I must acknowledge with due respect the constant support and patients of my parents.

ABSTRACT

I was the Animation Art Director for the animated short film Dhowa, a story that explores the struggles of a rickshaw puller and the unintended consequences of human actions on nature. The film conveys a powerful message about environmental responsibility through the symbolic journey of a crow and its nest, highlighting the fragile balance between human life and wildlife. My role involved modeling and texturing over 38 3D props, including road assets and modular components, using Autodesk Maya and Adobe Substance Painter. Guided by a cohesive color palette and stylized realism, I ensured the visuals enhanced the narrative. This project reflects the team's motivation to create social awareness through impactful storytelling, blending artistic vision with technical precision.

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CHAPTER 1

Introduction

It's my privilege to present Dhowa, an animated short film which I wrote the story for, designed the art and created 3D props. It has been an interesting project where I as multimedia students tried to study about the complicated fields of art direction and 3D props development. As learners still refining my skills in animation, Dhowa represents not only my creative ambition but also my journey of growth in the field of animation and multimedia. As this is my first animated film, I faced many challenges in blending art direction with storytelling. Dhowa was created with a narrative that expressed the connection between people and animals. The primary goal of the film is, therefore, the need to create awareness in society, especially the need to love animals and have compassion for them. I tried to tell a story that would entertain audiences and provoke thoughts on the ways in which we treat or care for animals as a society. With regards to art direction, the objective was also to build a world that was not only aesthetically interesting but also supported the message we wanted to put across. A specific emphasis was made on creating three-dimensional [1] props and 3D environments supporting the mood of the narration, which was complicated due to the necessity of rich details. In spite of the fact that the animation quality might not be seen as a professional standard, Dhowa does demonstrate our dedication to advance since every stage of the development petered on our growth in practical and creative skills. In this way, we were able to examine the difficulties of merging narrative and visual design within one project, which has set a great background for further projects. The work on Dhowa was rather difficult but rewarding at the same time, especially 3D props and environment design. Although there were technical challenges, I learned how the art direction contributes to the narrative's emotional aspect. This experience built my skills in 3D animation, and also encouraged me to try new techniques in future projects.

1.1 Motivation

Dhowa aims at producing a short-animated film that appeals to its audience with a good story while serving a greater good by enhancing social awareness. Respect and love for

animals [2] is something that I think is truly vital for the balance of society and ecology, and it is for this reason that I decided to address these issues as a writer and one of the primary artists in charge of the art direction and creation of 3D props. Dhowa is a story which narrates the need for understanding and kindness towards animals. Having this concept in the story, I wanted to make a piece of art that would inspire people to change their attitude towards animals and the environment. This message of love towards animals has become an integral part in all our creativity and decision making as well, from designing the characters to building the 3D props and environments. Encouraging each aspect with the message of love and tolerance as the fundamental values of the film. In the course of developing Dhowa's look and feel, our team looked at other animated movies such as Luca [3], Coco [4], Encanto [5] and similar which possess strong emotional

Figure 1.1: "Luca" Animated Film Poster

engagement in the storytelling. These films were also useful in preparing the visual approach of the film, since the 3D props and other environments needed to be developed

in a way that was simple yet had a deep meaning in support of the social awareness theme. Results in creating meaningful 3D props and environments in a very short while made it necessary to acquire more skills in art direction but of course the message of the film was paramount. Dhowa is a project that reflects our commitment to using animation as a tool for social change. It's not just an opportunity to refine our technical abilities in 3D and art direction, but also a chance to share a message of love, empathy, and responsibility. Through Dhowa, we hope to inspire viewers to reconsider their perceptions of animals and develop a deeper understanding of how our actions affect the world around us. Throughout this journey, I've found a deep sense of purpose in combining creative expression with social awareness. Making 3D props, environments, and characters with the theme of love for animals has been an exhilarating endeavor both as a creator and as an individual. It encouraged me to go beyond the limits of my own skills, and to accept the responsibility of art direction because my work was going to make a difference. This experience, in turn, strengthened my understanding of animation as a form of visual storytelling [6], and now I am even more enthusiastic about embarking on new projects that are artistic in nature and have social applications.

1.2 Objectives

For the work on Dhowa, I plan on implementing art direction [7] and the development of 3D props for the purpose of enhancing the story, and further deepening the emotional content in accordance with the content of the picture devoted to social issues regarding caring for animals and showing sympathy towards them. It should be my responsibility to oversee and coordinate the style of the film and I would also say that in as much as there will be various props and different settings, there has to be a purpose to every single one of them to make the overall message and mood of the film coherent. I want to use art direction as an instrument to portray deeper emotions and concepts about the film, making it easier for the audience to relate to the underlying story. My goal in this project is to improve my skills in 3D modeling, texturing, and composition while discovering how art direction can influence one's perception of a film. Along with the technical goals, this is a crucial stage in my development in 3D animation and multimedia art. My experience working on Dhowa has allowed me to delve into different aspects of visual storytelling,

such as the relationship of colors, textures and shapes and their synthesis to deliver the message of the film. Practicing in this field also means that I am developing the ability to design a cohesive visual style and create environments that immerse the audience in the character and story. I want to learn more about the problems involved in professional animation, owing to the fact that such knowledge is going to assist me in my future endeavors. As a further goal, I would also like to master the workflow of working on a single project with a team, which is essential to everybody at Dhowa as there is constant feedback required between artists. Related to this, I hope to develop skills in flexibility in changing my vision of the style of the work in accordance with the opinions and technical limitations of the team. In addition, this enables me to enhance the quality of the final pieces to ensure uniformity across pieces in the allotted timeframe. The last part of my ambitions includes developing my collaborative skills, which will be useful in the future, and creating pieces that I will be happy to show other people.

1.3 Expected Outcomes

From the work I am undertaking in Dhowa, there are several target outcomes that I look forward to achieving concerning my practice in art direction and 3D prop creation. To begin with, I would like to develop a thinly woven but visually attractive and emotionally compelling world which further boosts the narrative, reinforcing the key themes of the film, Social Concern [8] and Love of Animals. As I enhance and develop my animation and multimedia practice, I intend to get as much detail and coherence in story-driven 3D props and environments as I can to feel the audience's response and deliver the message. I also hope to improve on the technical aspects of 3D modeling, texturing [9] and composition, in particular, how the different visual elements work in relation to story. This project provides me the chance to practice and execute these skill sets in actual industry setting, allowing me to relate theory and practice. I also look towards enhancing my skills in merging the ideas of a film into 3D components that are useful and coherent with the goals of the film. I also expect improvement in project management whilst working in a collaborative context as a source of growth. I wish to enhance my communication and adaptability skills in the process of achieving the project scope on an individual basis contributing to the overall project. I also wish to become confident in assuming the

responsibilities of the upcoming projects, in particular, the one that involves art direction where there is a conflict between creativity and technical realization. Above all, I would like to create audio-visual works demonstrating my development as a multimedia artist and engage the viewers thanks to a significant idea and a powerful aesthetic of the movie.

1.4 Project Management and Finance

Three creative individuals working on the Dhowa project each took on different responsibilities and produced an outcome individually. For me, it was majorly concept art and developing 3D props, while my classmates tackled the areas of Character Design and Animation Techniques, Post-Production Workflow and Editing Strategies. This was a multimedia learning project. As such, it had a cost constraint and we sourced for free materials and educational license versions of our software. A Texturing and Look Development course from Domestika [10] was a purchase that the team made and was

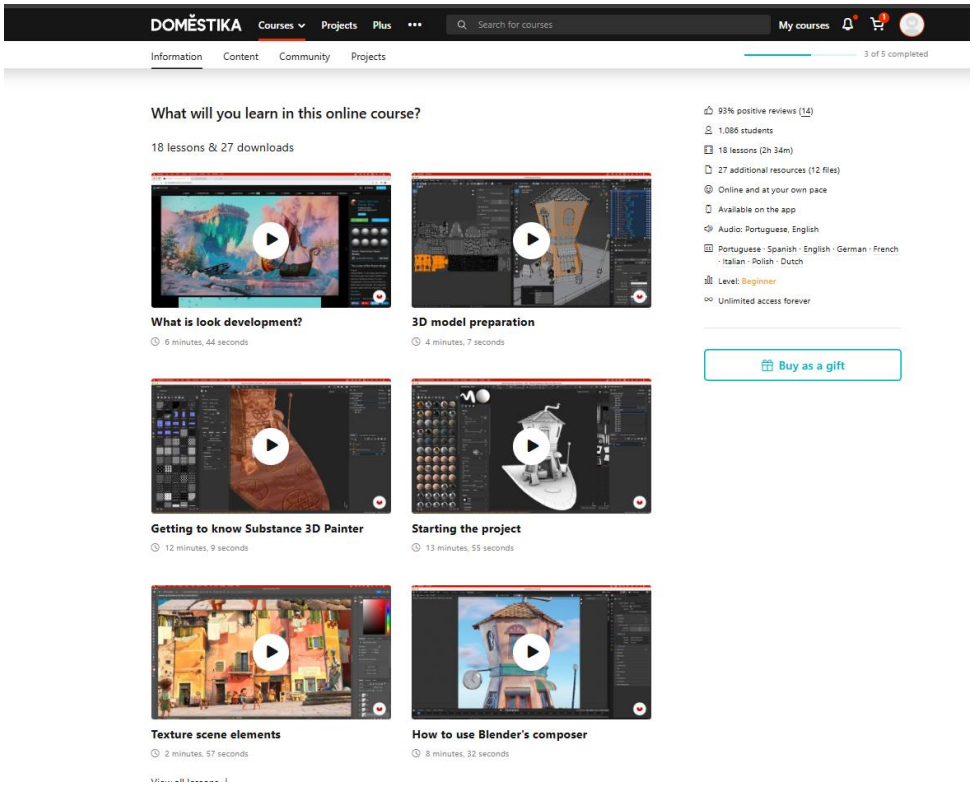


Figure 1.2: DOMESTIKA Look Developent Course

beneficial in improving how we designed textures and the overall appearance of designs. No external funding was used since this was done in a course context with no intention of

making a profit. Program management included the establishment of a schedule, task allocation, and control over the disintegration of the production process in accordance with the plot and graphics. Due to the collaborative nature of the work, regular contacts were established within the team and there were some adjustments to the timetable in order that commissioning the work would not exceed the budget.

1.5 Report Layout

The Report Layout for the Dhowa project is organized as follows: Chapter 1: Introduction provides an overview of the project, including the motivation, objectives, expected outcomes, and the management of resources, including project finance and software usage. The chapter concludes with a description of the report layout. Chapter 2: Background discusses the foundational concepts and terminologies used in the project, reviews related works, offers a comparative analysis, outlines the scope of the problem being addressed, and highlights the challenges faced during the project. Chapter 3: Requirement Specification covers the business process modeling, requirement collection and analysis, use case modeling and descriptions, the logical data model, and the design requirements for the project. Chapter 4: Art Direction focuses on the overall art direction, including concept development, visual style and design, the color palette and lighting choices, and how the art direction was integrated into the storytelling process. Chapter 5: 3D Props Development discusses the 3D props development process, including the modeling and texturing processes, and provides an evaluation of the final 3D props with images showcasing the modeling and texturing work. Chapter 6: Impact on Society, Environment, and Sustainability explores the social, environmental, and ethical implications of the project, as well as outlining a sustainability plan for future projects. Chapter 7: Conclusion and Future Scope provides a discussion of the project's achievements, challenges, and lessons learned, along with the scope for future developments. Finally, the References section lists all sources used in the project.

CHAPTER 2

Background

Animation Dhowa was a socially driven project, meant to raise awareness about compassion for animals and caring for the environment. Situated in the context of a small South Asian community, this story brings to the forefront the hardship of common people and their interaction with nature and animals. A collaborative project done by learners working together, each according to their own skills and capabilities. The film combines cultural aspects, relatable storytelling, and visual art direction to tell a compelling and meaningful story. The background of the project really shows a shared wish to marry technical learning with impactful storytelling-a testament to creative will by the team.

2.1 Terminologies

This section is devoted to the explanation of the key terms and their meanings that are relevant to the Dhowa project. Art direction is an important role in animation, directing aspects of the visual realm like characters, growing environments, and props, and establishing an overarching coherence across the project. 3D composing model implies creating virtual representations of items, which in Dhowa entails prop designing and environment building that content the storyline. Texturing is also known as the process of applying distinctive characteristics on the surface of these 3d shapes, so as to give them a realistic touch, in line with the stylistic imagery to be presented in the film. Visual style speaks about how far artistic decisions are made for the project like choosing of colour schemes, lightings, and general outlook, all which are geared to promote the messages of concern for the society and care for other living things. The social awareness aspect in Dhowa employs narrative and animations to draw attention on the need to show kindness to the animals, and the concept builds on the plot of the story which makes the audience to appreciate the importance of empathy and kindness towards the animals. These ideas are the basis of the project concept, its artistic and narrational strategies. Additionally, animation pipeline tools like Autodesk Maya and Adobe Substance Painter were integral to achieving the project's stylistic goals. This section outlines the fundamental ideas and terminologies that define the foundation and execution of Dhowa's vision.

2.2 Related Works

Developing Dhowa required research into various animated short films and backstages that could help inform the creative and technical working of our project. Films such as Luca, Coco, and Encanto were really helpful in art direction [11], character design, and ways of

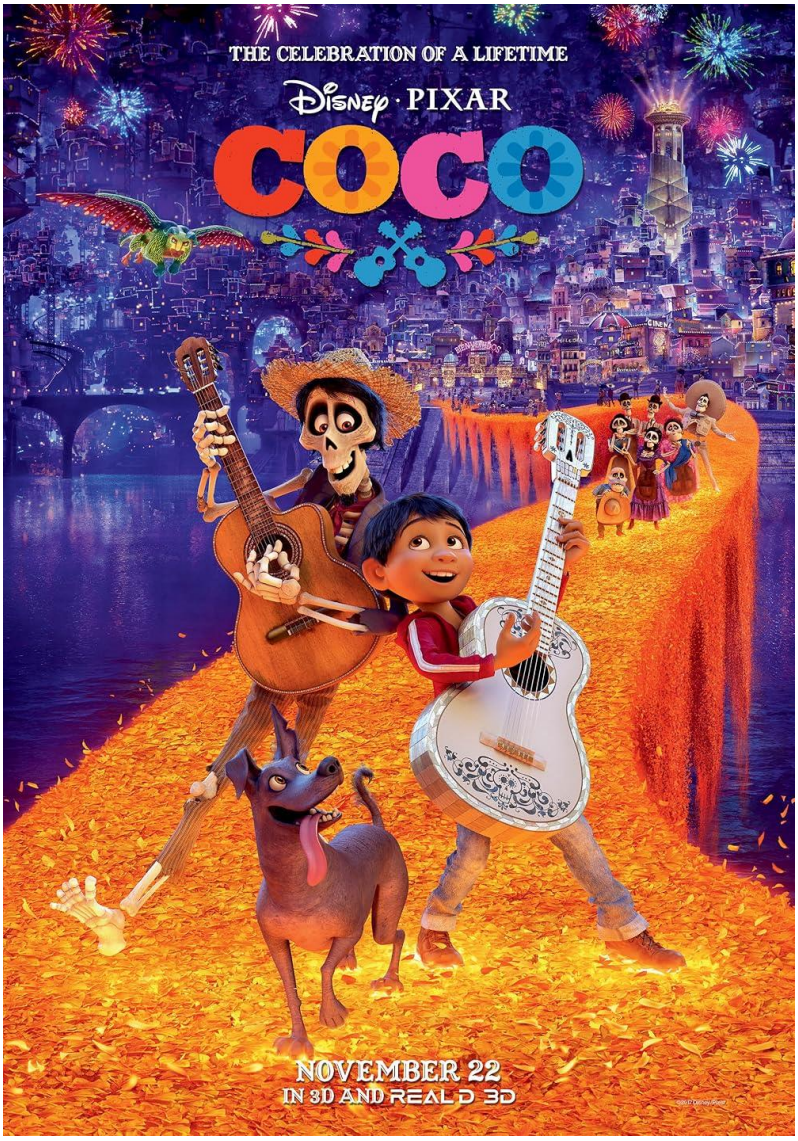


Figure 2.1: “Coco” Animated Film Poster

storytelling with emotions. These films have shown how the visual style, color palette, and lighting can deeply affect narrative-discourse and became a reference for developing the emotional tone in Dhowa. I also watched several behind-the-scenes videos from animation studios [12], which talked about the workflows that went into creating 3D assets, texturing,

and including props into environments. Animated shorts such as The Wild Robot, Migration, and Chicken Nugget also influenced the creation of both stylized yet realistic

Figure 2.2: “Migration” Animated Film Image

environments that drove the design of the 3D props in Dhowa. Influenced by these films, too, is the way simple yet powerful storytelling represents the theme of our project: social awareness and empathy towards animals. The developed style, techniques, and narrative approach for Dhowa have greatly borrowed from these related works.

2.3 Comparative Analysis

Comparing Dhowa with other animation shorts, I took into consideration such aspects as visual style, storytelling techniques, and the usage of 3D modeling. Films under my studies, like Luca and Coco, have detailed character and environment designs, using advanced rendering techniques and textures to visually create beautiful worlds. Realism and complexity in that sense were beyond our possibilities at this moment, given that my team and I am still in the learning and development phase in regard to multimedia and 3D animation. So, we went for more stylized and simplified visuals at our grasp in this very moment. Animation movies, like The Wild Robot [13], have minimalistic storytelling in such a way that it touches one's feelings. Dhowa was also supposed to be based on this style. As much as the animation quality is not among the professional standards, we tried

to put across the social awareness and empathy for animals in the message through simple yet effective graphics and a clear storyline. It is useful to underline some of the technical

Figure 2.3: “The Wild Robot” Animated Film Image

problems we had to face doing 3D modeling and texturing, since all these films we drew inspiration from use very polished textures and models, while our project relies on a simplified process of texturing with stylized 3D props. This gave us the chance to take up a project that would be within our reach and allow us to work on an articulate story rather than quality animation. In general, although Dhowa has not reached technical capability in relation to bigger animations, the insights learned through our comparative study influenced creative decisions we made. It allowed me to do a very unique and meaningful short film, a reflection of my growth as a multimedia artist.

2.4 Scope of the Problem

Dhowa addresses the scope of the problem: creating awareness concerning social issues, especially lack of empathy towards animals, and how human negligence contributes to detrimental effects on their lives. I have tried to portray in my story how emotionally deep the issue is; that is, how animals get affected by human behaviors at large instances, which go largely unnoticed or heeded. The film also tends to bring out the essence of kindness and responsibility towards animals [14], along with a storyline relatable to people from all walks of life. On a more technical level, the scope of the problem was to create an

aesthetically looking and emotionally engaging short film within the limitation of our current skillsets and resources. Since this was the first project of this kind for my team, balancing storytelling with 3D modeling, texturing, and animation [15] tasks was quite demanding. It was intended to deliver a message that would be both cohesive and impactful, even considering stylized visuals and a workflow driven by learning. In response to these issues of highly intertwined social and technical challenges, Dhowa tries to serve as both a platform for raising awareness and a stepping stone in the growth of my team into multimedia artists. The scope of the film reflects our ambitions in handling meaningful themes while overcoming constraints of time, resources, and experience.

2.5 Challenges

Dhowa was a rather challenging development both technically and creatively, since it was my team's very first try at creating an animated short film. Among the primary tasks was to let storytelling be interpreted according to visual elements, the props, environment, and characters should speak for social awareness and animal empathy [16]. Since my role was story writing and art direction, balancing narrative depth with stylized visuals required continuous adjustments and refinements. From a technical viewpoint, limitations mainly included working with limited resources and student versions of the software. During the creation of 3D props and environments, I also encountered the challenge of keeping a consistent visual style and seamless integration of assets within scenes. The complexity in creating the assets also included texturing and lighting, as achieving a desirable look within the skill set and time required learning and experimentation constantly. Other important challenges were about time management. As each of the three members managed different parts of the work, harmonization and compliance with a tight schedule would need effective communication and frequent revisions. Moreover, since we are still in the process of learning multimedia and animation, even a moderate quality required much effort and persistence. Despite these many obstacles, the challenges provided real experience. The work improved my technical and creative skills, as well as my understanding of collaboration and problem-solving in the team project environment. Overcoming these challenges has thus laid the foundation for handling bigger projects in the future with much greater confidence and expertise.

CHAPTER 3

Requirement Specification

Dhowa's creation involved several software tools that supported creative and technical production. Each of the tools was handpicked to play a specific role in the production process so as to ensure that the artistic vision was realized without sacrificing efficiency and precision. Primary software for 3D modeling: Autodesk Maya 2023 [17]. With its great capabilities regarding detailed and modular assets, it was just the perfect choice to create everything from simple road props to complex, modular environment pieces. The flexibility of Maya allowed me to work in an efficient manner while keeping quad topology standards and preparing the assets for later stages in production. During the whole creation of Dhowa, the software ecosystem played its role as an active backbone where the creation of creative ideas was given real-time output. For modeling, it was the backbone on which large models could be built for vast capabilities down from simple props up to modular environmental elements with unparalleled precision. Fully featured texturing took the help of Adobe Substance 3D Painter [18]. Apart from that, it integrated well with a stylized workflow that could help capture the intended aesthetic for Dhowa. It further extended value addition by allowing auxiliary design tasks in Adobe Photoshop and Illustrator, enhancing graphic elements and adding depth to the film's visual narrative. Pureref [21] simplified pre-production by providing one place to store and organize all of the visual references. Adobe Substance Painter, version 9.1.2, was an important texturing tool during this process. This became a powerful avenue for creating rich and intricate texturing and materials that fit perfectly with the picture of the film. Base colors mixed with grunge and dirt-no matter what kind-would become an instrument of achieving stylized yet realistic performances that were required for this project. Supplemental design work outside of Substance Painter included work in Adobe Photoshop [19] and Adobe Illustrator [20] for poster creation, visual elements, and text-based graphics that would add some depth and storytelling to the overall visual narrative. PureRef was used to organize references and visual inspirations. It served as a good enough tool for gathering and arranging references in order so that production could keep all the team members oriented regarding their

creative direction. Combining these software tools created a structured workflow from modeling to texturing and onwards. These tools together supported every phase of the production process to achieve the intended quality and artistic objectives of Dhowa.

Table 3.1: Software and Hardware Requirements

Category	**Details**	**Purpose**
Software	Autodesk Maya 2023	Main platform for 3D modeling and UV mapping of props.
	Adobe Substance Painter 9.1.2	Detailed texturing and look development for high-quality materials.
	Pureref 2.0.3	Gathering, organizing, and referencing visual inspirations.
	Adobe Photoshop	Editing textures, creating posters, and additional 2D graphic design.
	Adobe Illustrator	Designing vector-based graphics like signage and writing materials.
Hardware	Intel(R) Core(TM) i9-14900KF Processor (3.20 GHz)	Ensuring smooth multitasking and high-performance 3D processing.
	32.0 GB RAM (31.8 GB usable)	Efficient handling of heavy 3D models and textures.
	GeForce RTX 4070 Ti 12 GB GPU	High-performance rendering and real-time visualization.
	2 TB SSD	Sufficient and fast storage for large project files.
	64-bit Operating System	Support for complex software and high computational needs.

CHAPTER 4

Art Direction

Art direction was a vital aspect in the development of Dhowa's visual identity and storytelling. My main tasks, as an Art Director, were to create and continue the leading line of visual style that would lead the story and emotional expression of the short film. A story like Dhowa, which is based on and built around minute details of daily life, socially, required an aesthetic screaming simplicity and authenticity. The color palette I prepared kept in mind warmth and earthiness to reflect upon the frugal lifestyle of the characters and the rural South Asian backdrop. During pre-production, it was really necessary to work in a team: I was responsible for the storyboard, references, and initial visual concepts. Art direction then proceeded with modeling and texturing in order to make sure all 3D assets-from hero props to modular environmental elements-were in style. I wanted the environment to feel lived-in and relatable but still artistic by using stylized textures and adding subtle imperfections. The ultimate goal was to make the lighting and all the properties work together in support of the story. After much planning and proper execution, the art direction of Dhowa finally helped bring the story into reality for the audience-a visual delight.

4.1 Story

Every story begins with a simple moment that carries a deeper meaning. Dhowa unravels the connection between humans and nature through a heartfelt and thought-provoking narrative.

Dhowa

—Talat Mahmud Hridoy

The school gate would get busy around 11 a.m. After dismissal, rickshaw driver Zahir Mia was often caught up in bargaining with passengers. Once settled, he'd navigate the city's heavy traffic to get them to their destinations. But with the end of annual exams, report cards distributed, and the school now closed, things were different. For Zahir Mia, the usual rush was gone. There was no need to bargain anymore as passengers were scarce. He glanced at the dusty, stale chicken fries lying on the sidewalk. The previously bustling

metropolis seems to be getting quieter every day. Even the overwhelming noise had subsided. Now, he could pick out individual sounds amid the usual chaos—cars, horns, and even birds. A crow's caw! Zahir was surprised, realizing he hadn't noticed any crows in a long time. He thought that the main reason was that the crows were dying by eating contaminated food. Or they fled the city because they could not eat adulterated food. Suddenly, a crow swooped down, snatching up a piece of fried chicken before flying off. Zahir felt dizzy for a moment and muttered to himself, "What am I even thinking? If I don't get a passenger, my mind wanders." "Where will the brother go? Damn! If you don't go, you don't. But what do they even sell here that people buy?"

Oh! the lantern, the sale is good. I saw a lot in the morning, it was almost the end. When he got home, his wife asked, "What's wrong? You look so down. Did something happen?"

"Father! Father! Can you buy me a jacket? It's so cold."

"Go on, leave me be," Zahir replied, a bit irritated.

Zahir sighed. "I'm barely making anything. Many of people left town in December. Until the new year, I won't earn much driving this rickshaw. Moneys owed for the garage and I barely have anything left in my pocket."

"Don't cry, child. Your father will buy it; just wait a bit longer," his wife comforted Rakib.

Later, Zahir looked at his wife and asked, "What do you think about selling lanterns? I saw them selling well today. Maybe I'll start tomorrow and see how it goes."

"Alright, give it a try. But first go wash your hands," Rozina replied.

As Zahir washed his hands with water from the pitcher, a chicken bone suddenly fell in front of him. He looked up and saw a crow's nest. He thought to himself, "The crows live so close, yet I never noticed!"

"Caw, caw, caw…"

One crow turned to another perched nearby and said, "Watch the chicks while I go search for food."

"Alright, just come back soon," the other crow replied. After a while, the first crow returned, bringing food but looking concerned. "It's all tainted—the food's either stale or laced with chemicals. How am I supposed to feed my chicks this?" The next day, Zahir sat

at the crossroads, selling lanterns. By afternoon, he had sold out and returned home early, surprising his wife.

“You’re back so soon!” she exclaimed.

“Sold everything,” he replied, his eyes welling with a smile. He hugged Rakib, promising to buy him a warm jacket. Overjoyed, Rakib kissed his father’s cheeks and forehead.

“Wash your hands and eat,” Rozina said. Rakib joined his father for the meal, sneaking a bit of food outside afterward. He did this almost daily to feed the crows nesting in the nearby trees.

“Brother, it’s becoming hard for us to survive in this city,” one crow said to its neighbor. “I think we should leave once the chicks learn to fly.” The other crow nodded. “I feel the same.”

On the last day of the year, Zahir returned home early. Rakib was thrilled as his father had brought him a black jacket. His mother had made chicken broth curry, adding to his happiness. He even set aside a few pieces of meat for the crows, who were delighted with the treat.

“This city would be a better place if more people were like that child,” remarked one crow.

“Yes, tonight there’s something different—good smells are floating up from all around,” said the neighbor crow, noticing the festive atmosphere. “Many rooftops have people cooking tonight.”

“Let’s go out. Maybe the chicks can have a special dinner,” the first crow suggested.

Zahir and his wife retired to bed early, exhausted from the day while the city cheered. Lying between them, Rakib was unable to fall asleep and was kept awake by the outside music. Suddenly, loud noises erupted all around. Zahir sat up in shock, wondering if something was wrong. High up in the tree, one crow held its young close, while the neighbor crow flew off to investigate.

Moments later, it returned, distressed. “It’s terrible! People are setting off firecrackers and releasing lanterns everywhere. Birds are panicking. I saw two young ones die for the shock of sound.” The crow clutched its chicks tightly, fearful for their safety.

“Fire! Fire!” cried the neighboring crow, suddenly darting to a nearby branch. Its nest was on fire after a lantern fell on it. “Fire! Fire!” Rakib yelled, watching as burning straw fell

from the tree, igniting their plastic canopy. Zahir quickly doused it with water. The mother crow looked down sadly, realizing her chicks had gone still, silent to the blaring of sirens and the chaotic sounds of the city. She spread her wings once more to check, only to confirm that her young had died amidst the celebration, their fragile hearts stopped by the noise. Heartbroken, it looked at neighbor smoldering nest, watching the smoke rise. As it drifted into the night, it wondered, “Is this world only for humans? Why is our existence so insignificant?”

With a weary look at the billowing smoke, Zahir Mia muttered to himself, “How did we turn this world into such a harsh place for others? In struggling to survive, we’ve made it harder for them to live.”

4.2 Storyboard

The storyboard played a huge role in planning and visualizing the Dhowa narrative. It was a blueprint about how the script should be taken on to translate into visual frames, in sequence, with clarity about where the film is going in terms of storytelling. This gave the team an understanding of the pacing of the events to unfold, which camera angle to use, and what key emotional beats needed to be emphasized throughout the animation. The detailed sketches for every panel captured: Jahir Mia trying hard, communication with the environmental conditions around him, and the problem in the atmosphere for the survival of crows. The storyboarding was beyond the visualizations of sequences to support how the art and creative decisions from the preproduction period actually marry the technological process. It defined the placement of characters, props, and environments, making sure it would be consistent with the overall art direction and thematic goals of the film. The storyboard further allowed the team to create a visual map of the film and predict any problems that might arise in the narrative or transitions between scenes. It was also a very collaborative medium where in every single member on the team had a chance to provide his or her input on which direction the project will take. Its detailed visuals clarified the film’s structure and improved team communication. I present here the panels of the storyboard that were used in the visual breakdown of the narrative, so that one gets a clear idea about the progress and emotional depth of the story:

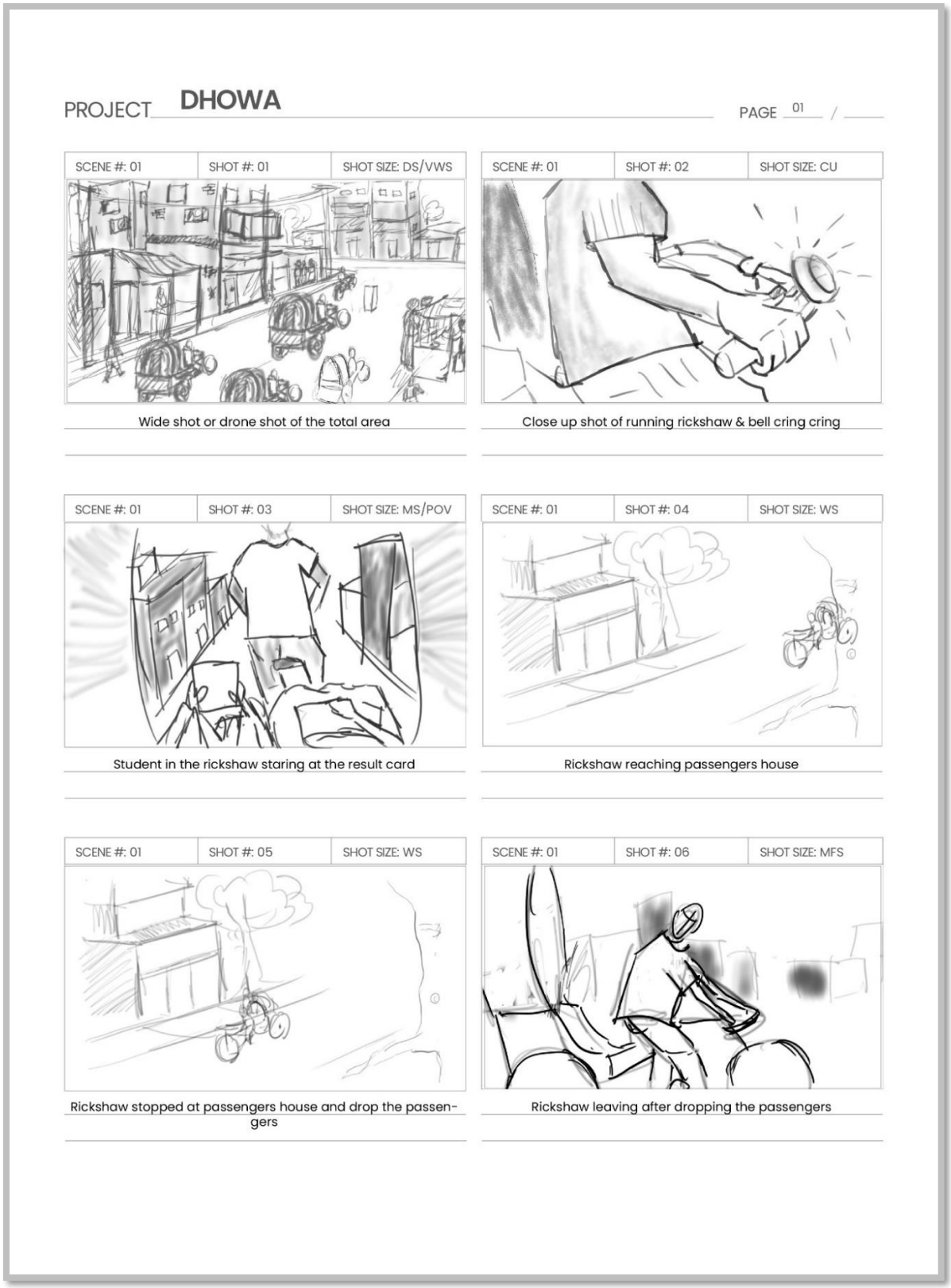


Figure 4.1: Storyboard for Dhowa First Image

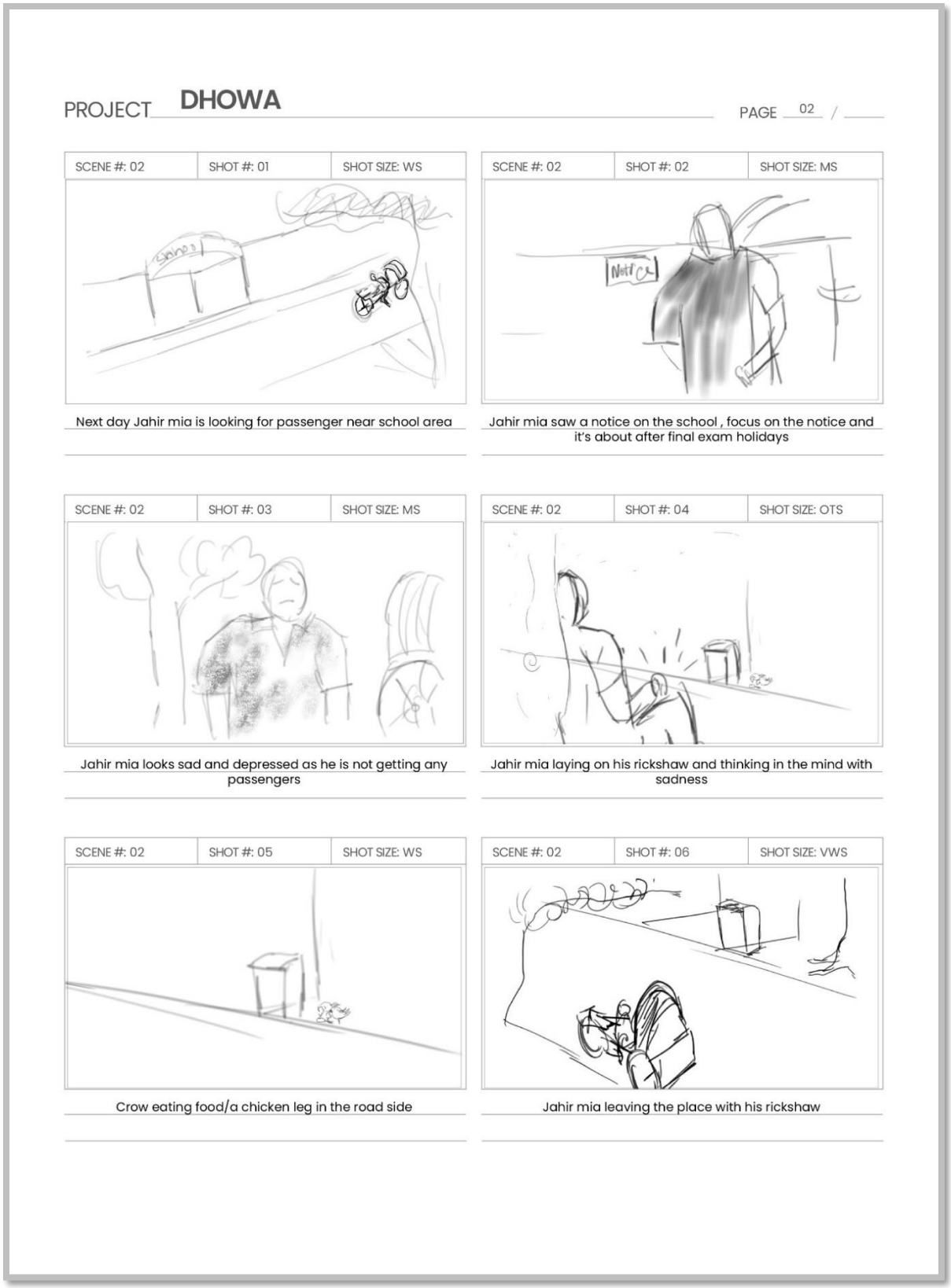


Figure 4.2: Storyboard for Dhowa Second Image

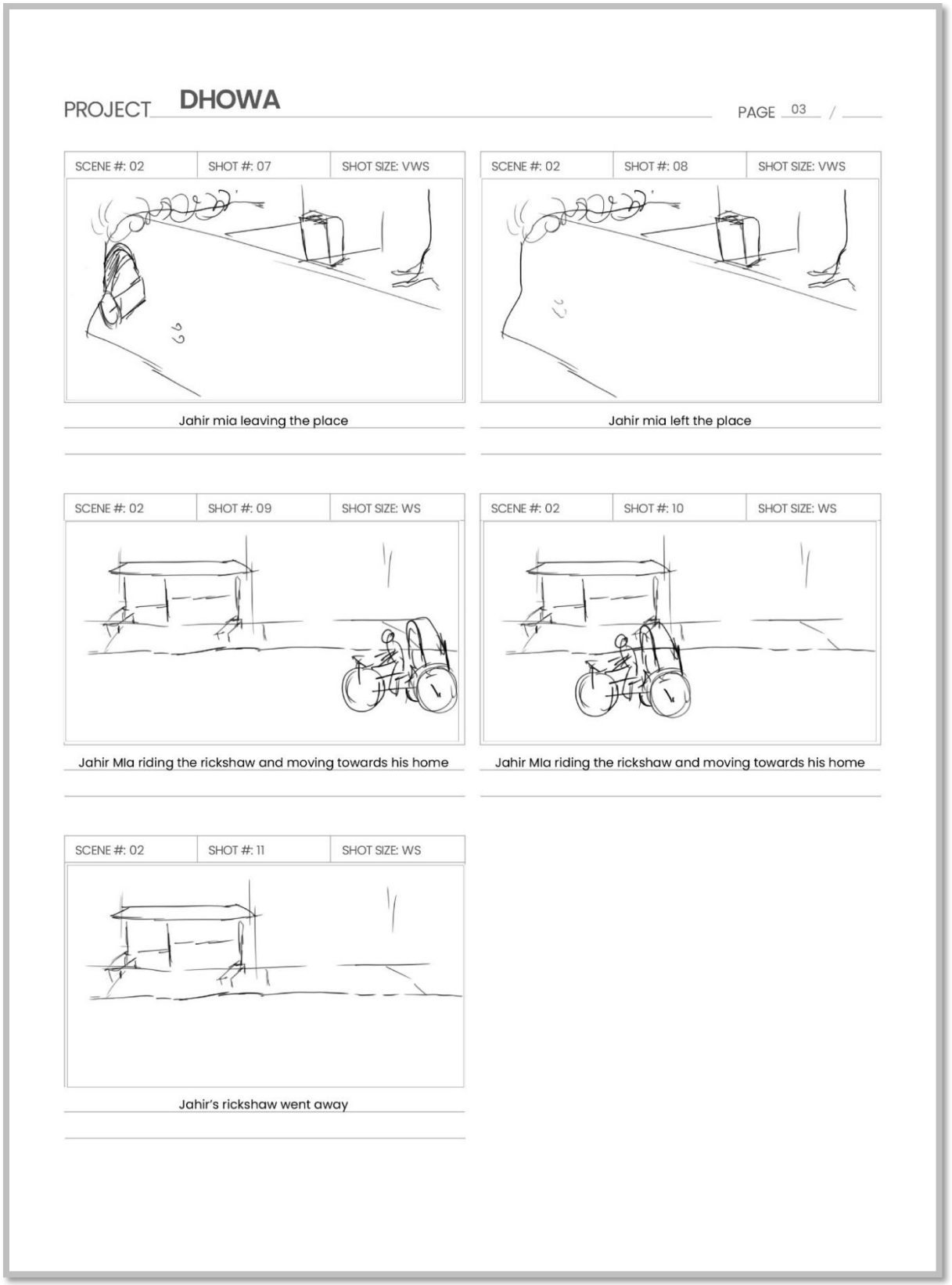


Figure 4.3: Storyboard for Dhowa Third Image

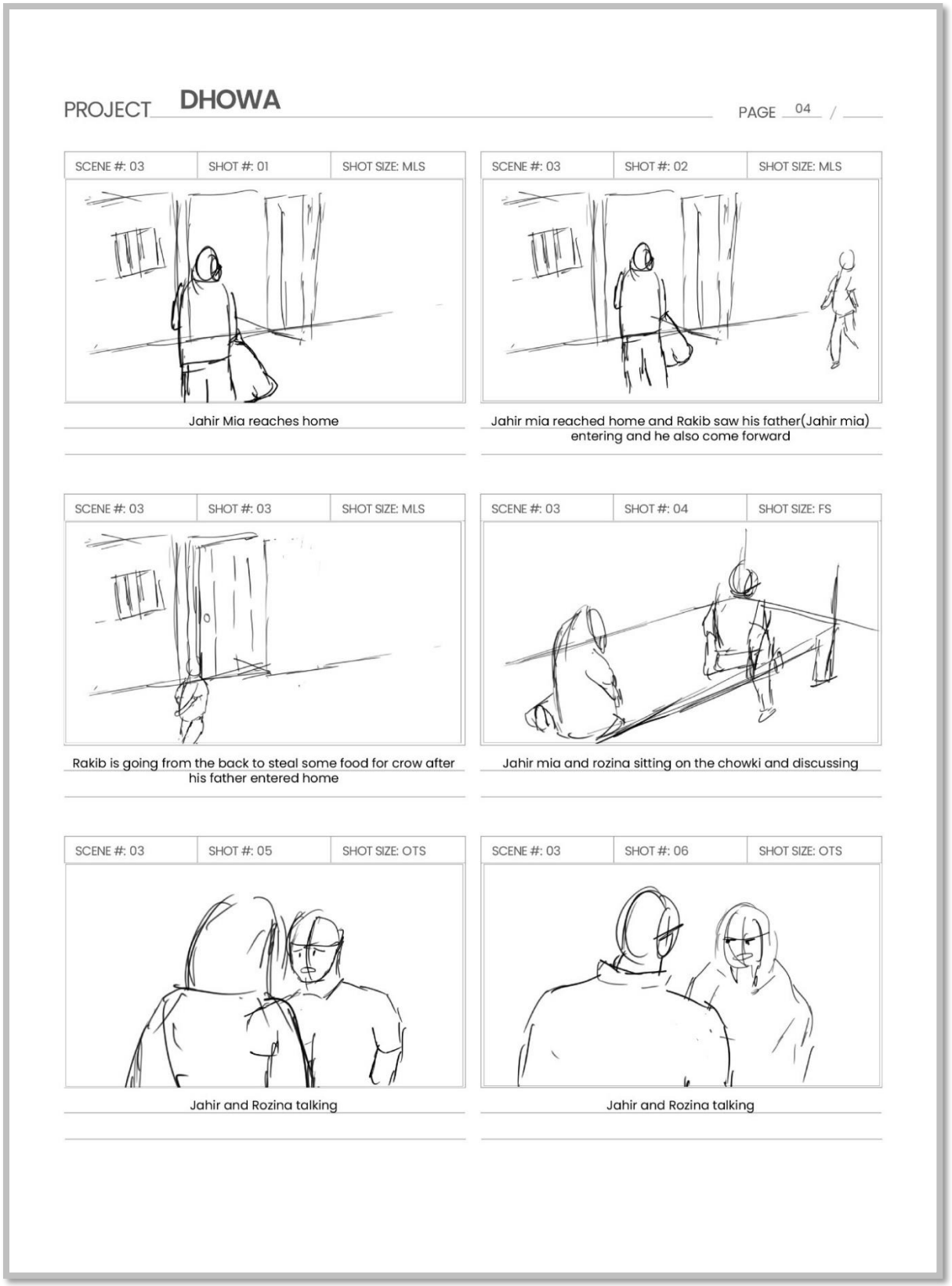


Figure 4.4: Storyboard for Dhowa Fourth Image

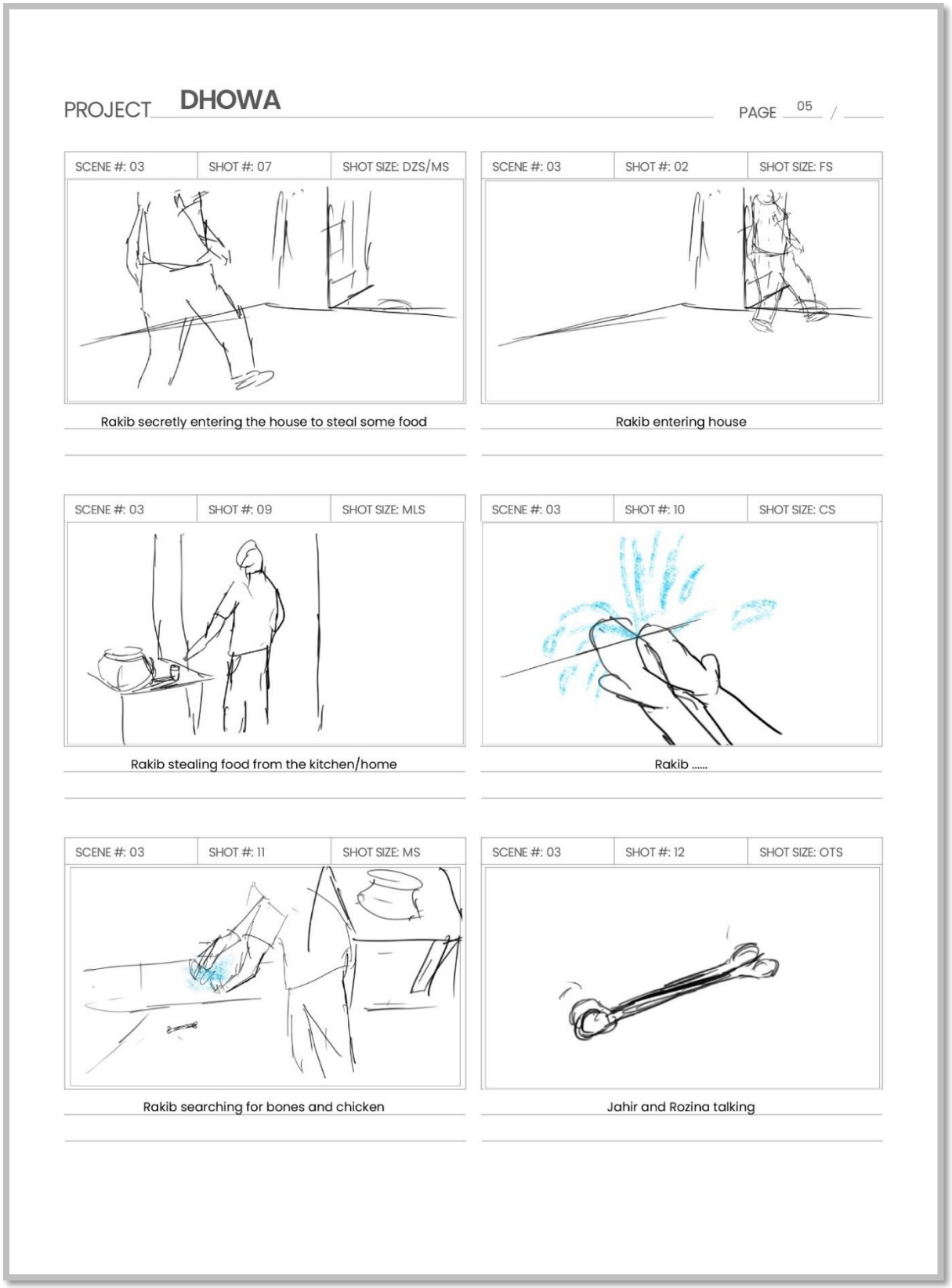


Figure 4.5: Storyboard for Dhowa Fifth Image

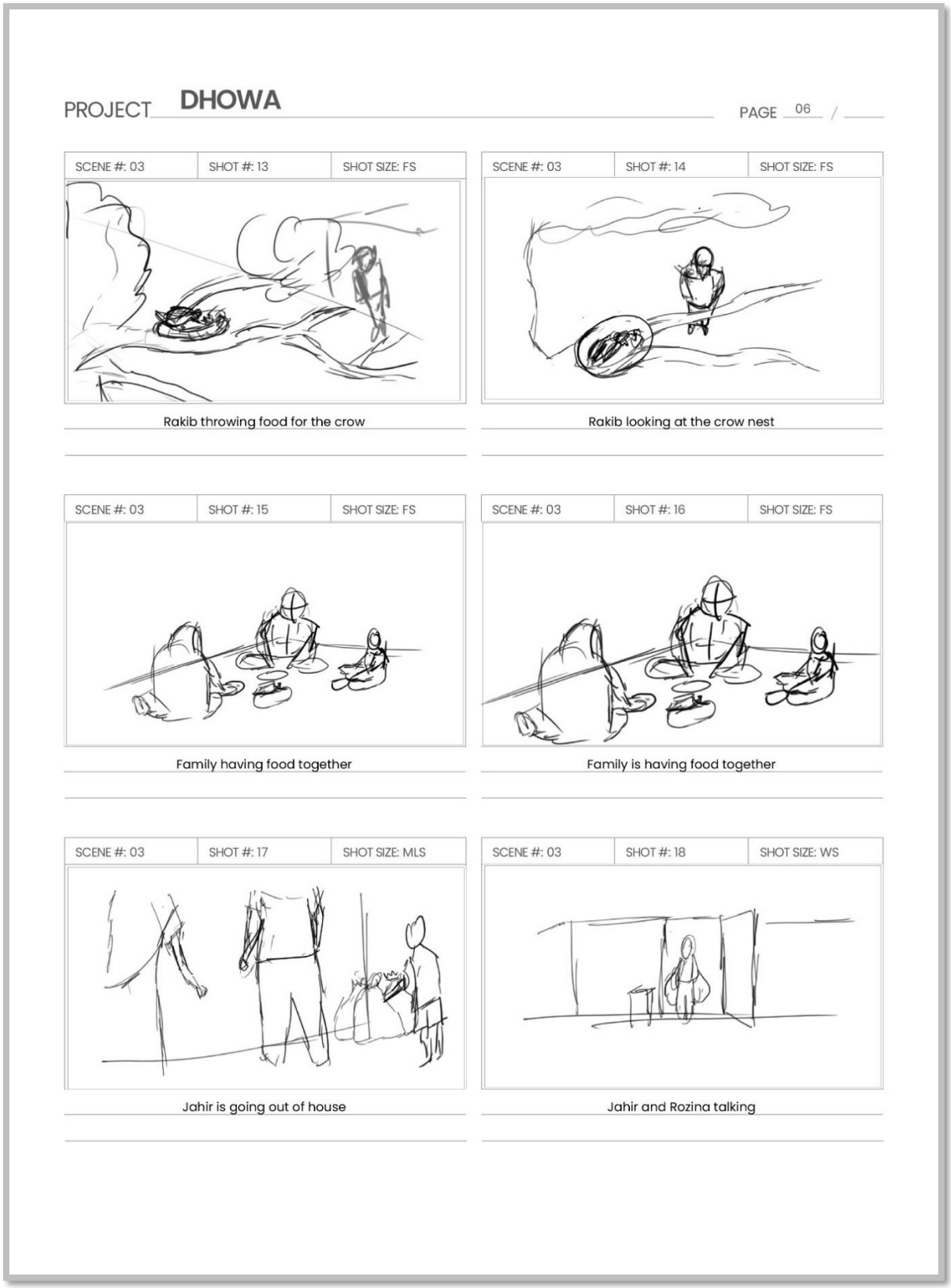


Figure 4.6: Storyboard for Dhowa Sixth Image

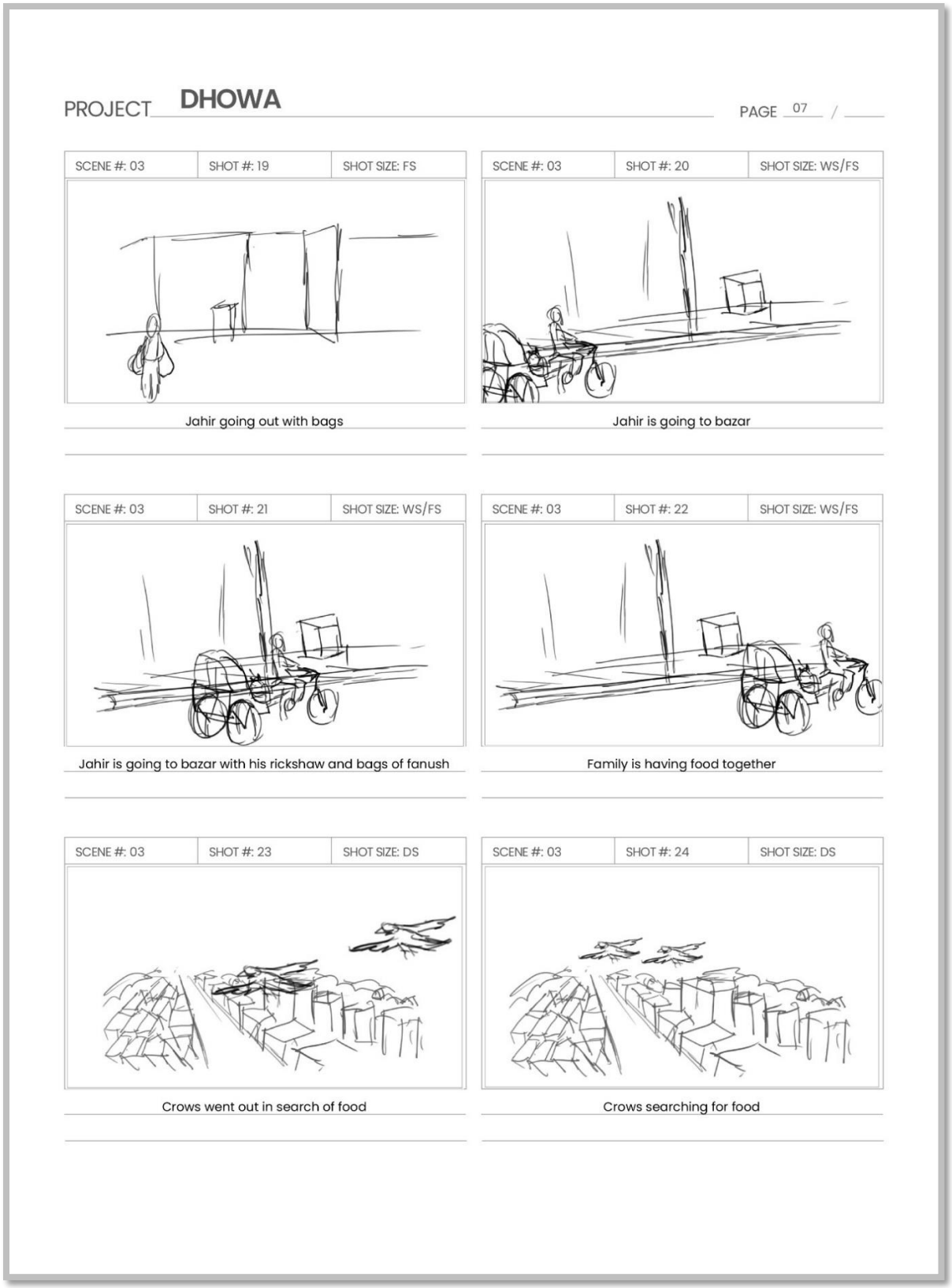


Figure 4.7: Storyboard for Dhowa Seventh Image

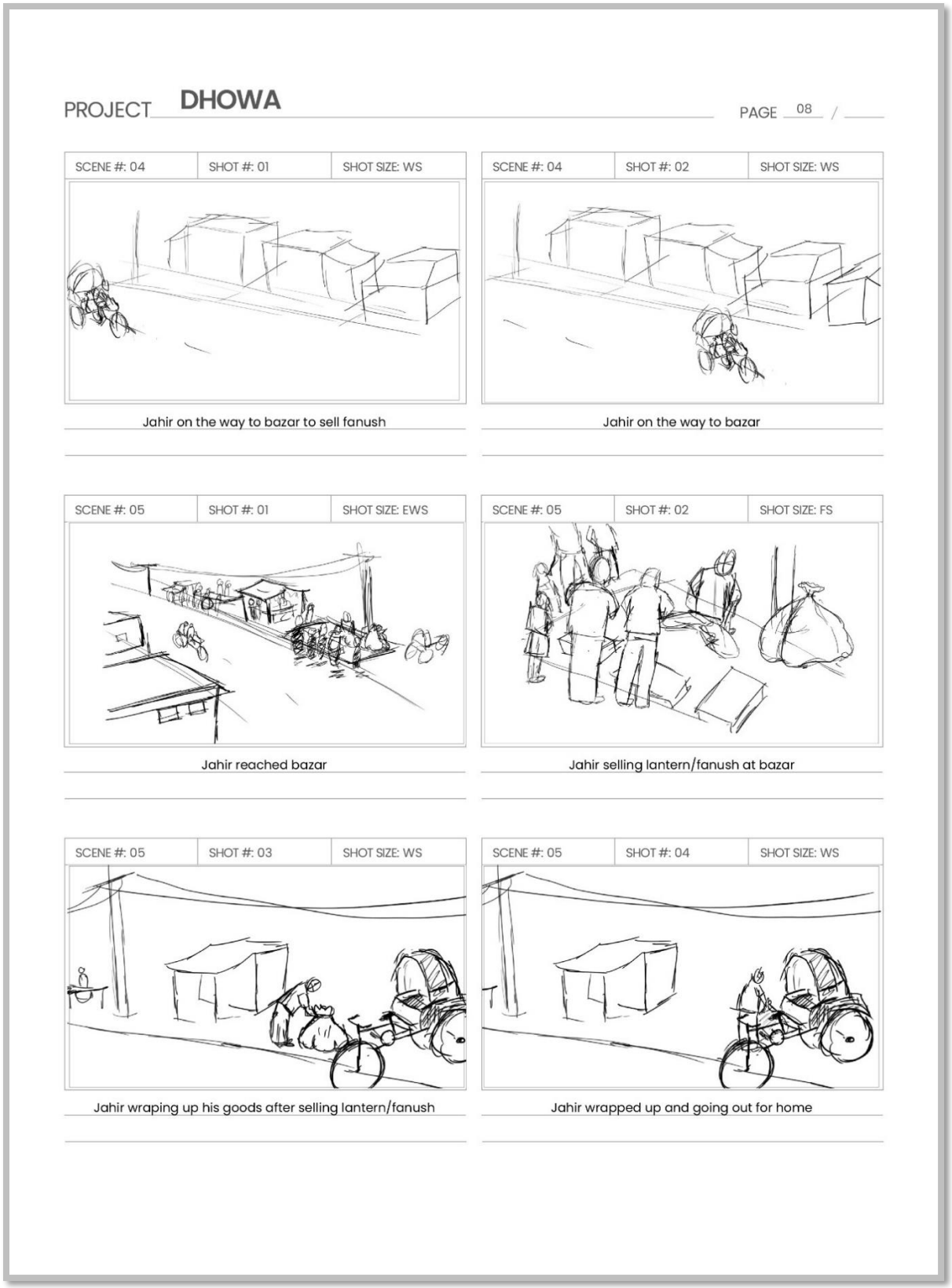


Figure 4.8: Storyboard for Dhowa Eighth Image

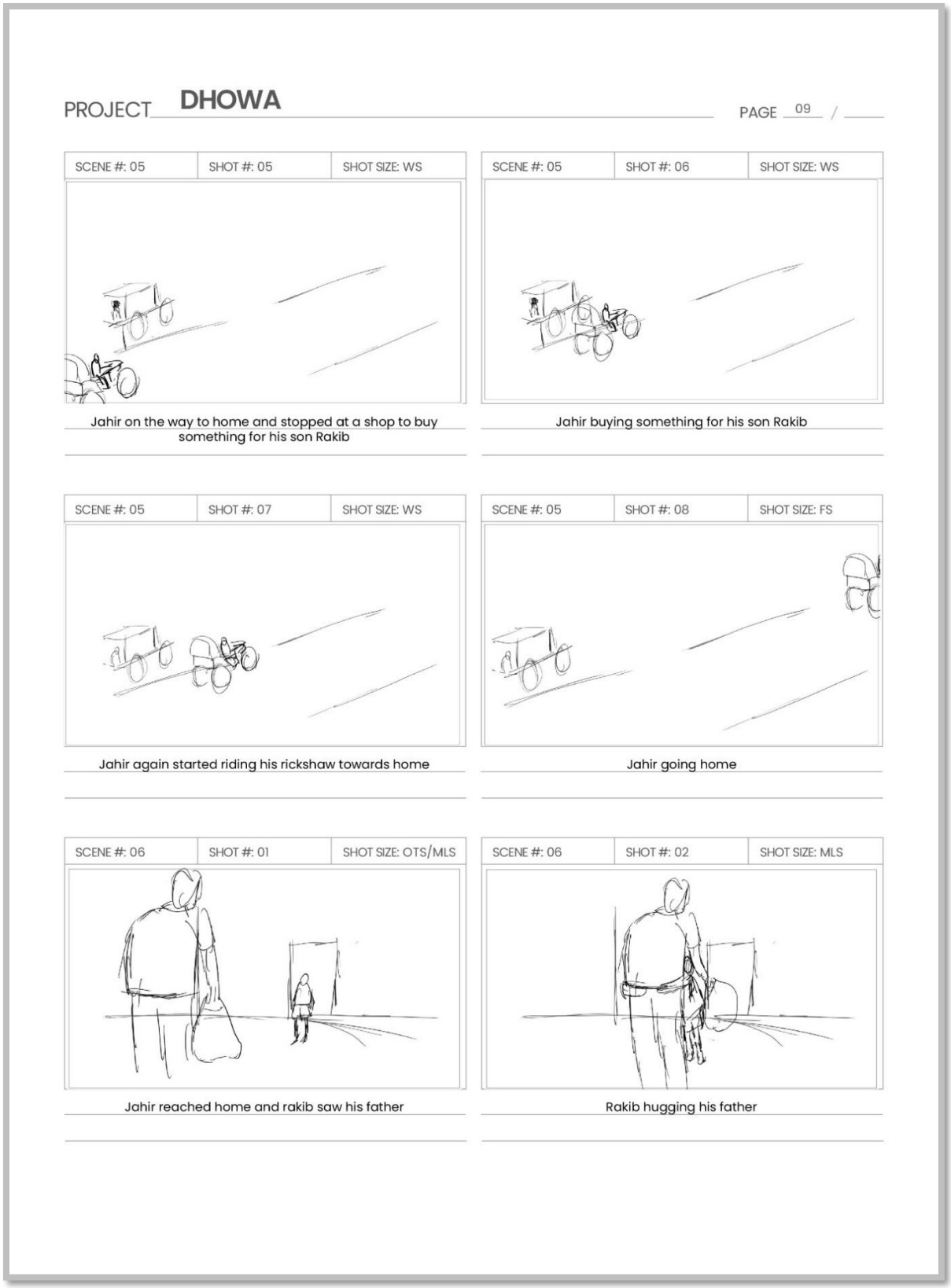


Figure 4.9: Storyboard for Dhowa Ninth Image

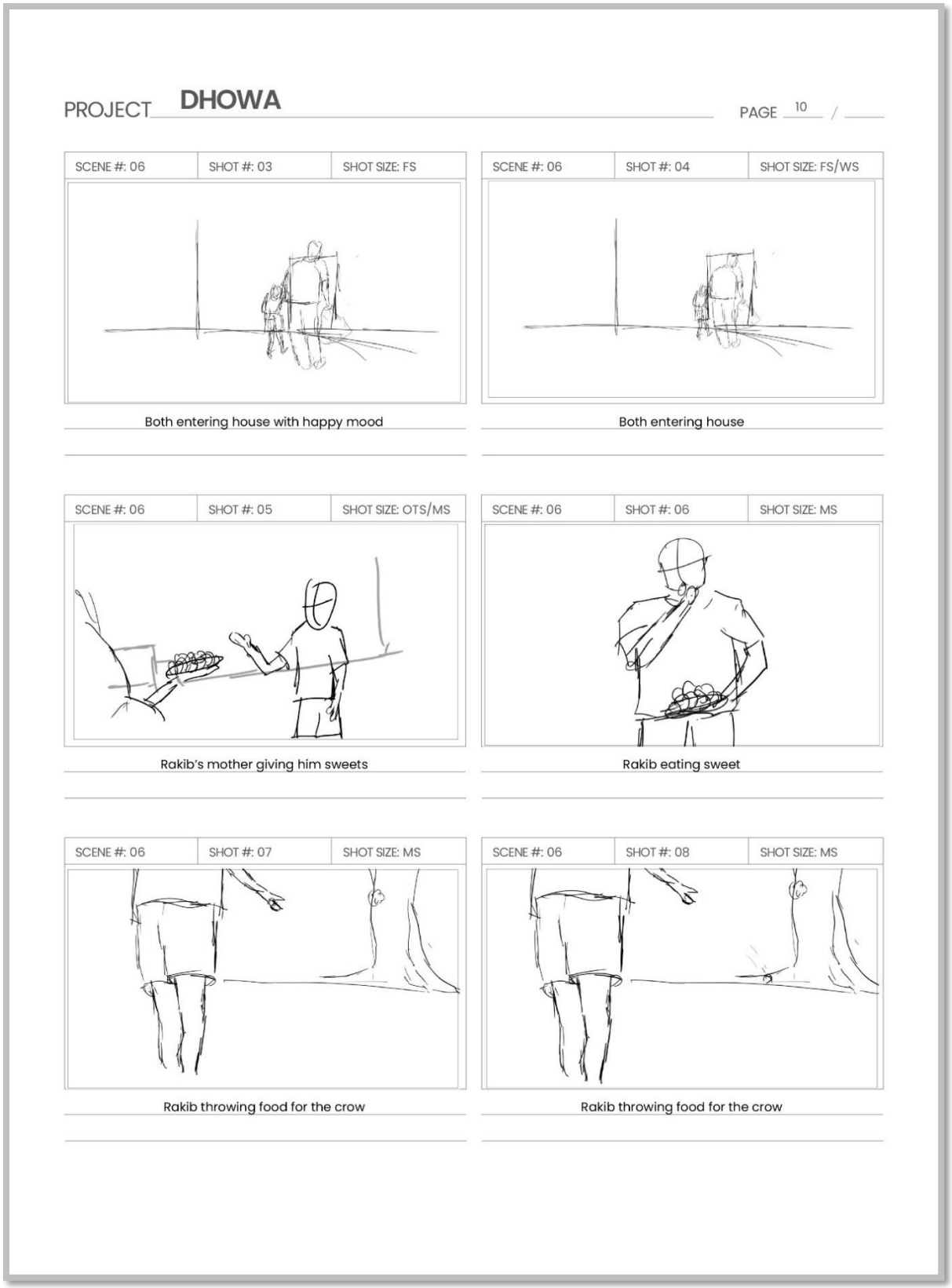


Figure 4.10: Storyboard for Dhowa Tenth Image

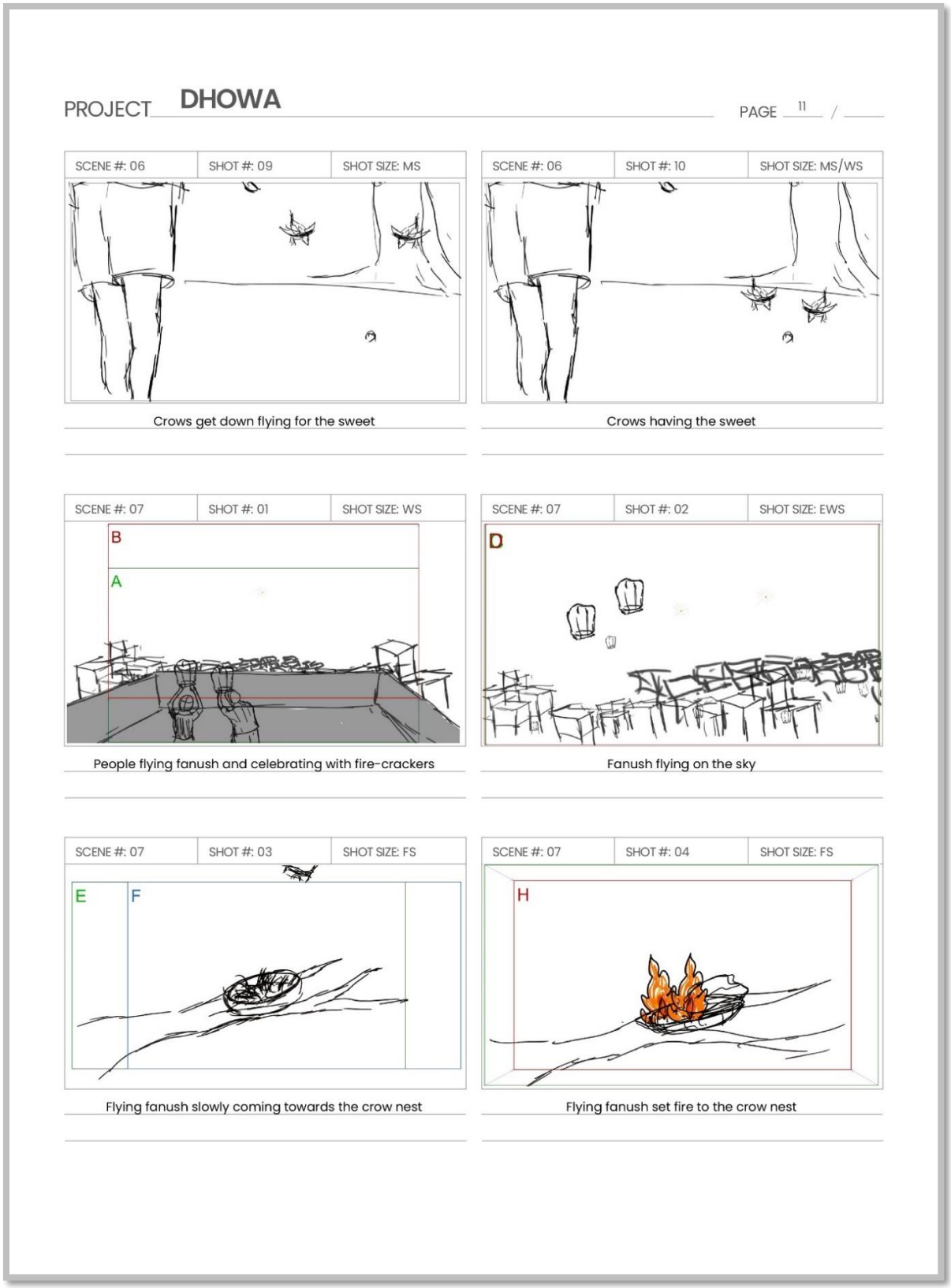


Figure 4.11: Storyboard for Dhowa Eleventh Image

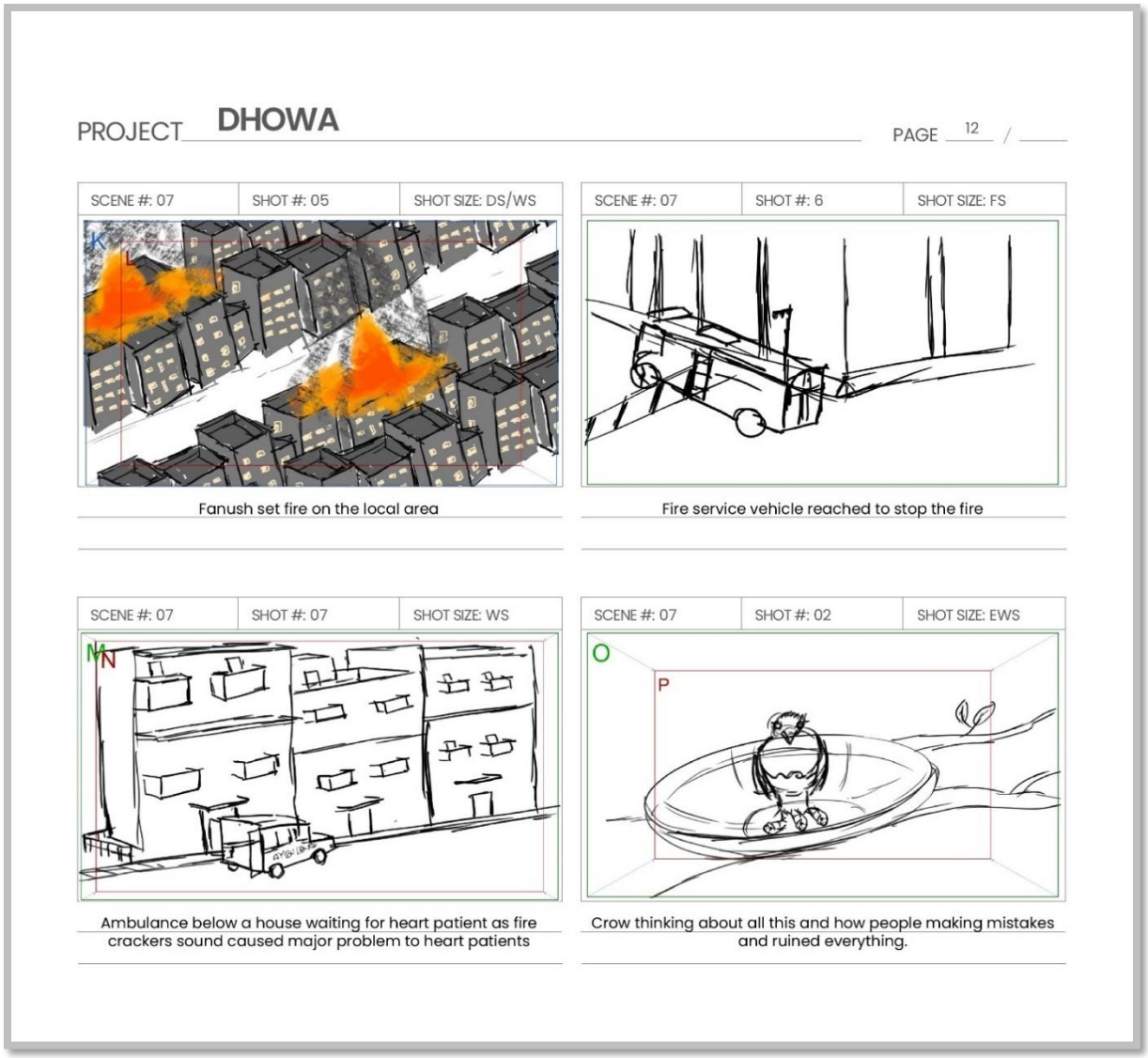


Figure 4.12: Storyboard for Dhowa Twelfth Image

At this stage, approximately 60% of the output aligns with the storyboard for Dhowa. The team is still in the learning phase, and while some scenes have been executed well, certain aspects did not meet the expected standard. This discrepancy arises from skill limitations, the complexity of the scenes, and unforeseen circumstances during production. These factors contributed to the challenge of fully adhering to the storyboard. However, the team plans to improve in the future by applying the lessons learned from this project to ensure better alignment with the storyboard in upcoming work. applying the lessons learned from this project to ensure better alignment with the storyboard in upcoming work.

4.3 Overview of Art Direction

Art direction is the overall foundation of any animation project, defining its overall look, mood, and visual narrative. For Dhowa, I had to make sure the art style was adapted to the central themes of the narrative: social awareness and emotional depth. This was achieved by developing a clear visual dialect that would communicate with the audiences while keeping it simple, bearing in mind the then level of our team's development in the multimedia aspect. The goal was to create a cohesive combination of hues, props, and settings that would help and augment the storytelling process. Realizing such synchronized vision required much planning and collaboration in the face of hurdles brought about by constrained experience and resources. The art direction provided a basic foundation for an engaging and cohesive visual experience, enhancing the overall impact of the narrative. This involved extracting information from a variety of animated films, analyzing their art styles, and assimilating this information into a form that would fit the scope and goals of our project. The final aesthetic is one that strikes a balance between stylized realism and simplicity, creating an aesthetic that allows the audience to connect emotionally with the characters and the world of Dhowa. With deliberate design decisions in every element, the art direction was not only supporting the story but adding another layer of meaning and engagement.

4.4 Concept Development

In other words, concept development was important in establishing the artistic vision of Dhowa: getting the emotional tone and essence of the narrative into concrete visual ideas that could later be realized with 3D props and environments. I began brainstorming, working out my thoughts onto paper in sketches, emphasizing elements that would symbolize the core themes of our film: community, being ecologically conscious, and, as always, love for all animals. My aim was to have each design element imbued with the simplicity and emotional depth that the story demands. I used specific reference to help develop the conceptual framework from animated films like Luca and Coco by analyzing how these works told their themes through color, props, and lighting. From there, my team and I identified visual motifs that we could apply to our project. For example, the design

of props and settings was meant to evoke a sense of everyday realism while also maintaining a soft, stylized look that would be emotionally resonant with audiences. I ensured that the conceptual designs were grounded in both the technical limitations of our team and the narrative goals through a series of iterative feedback sessions. From rough initial sketches, each concept evolved into more fully fleshed-out visuals—all driven by my responsibility in ensuring seamless integration of these concepts into the overall art direction. That helped us lay down a foundation that would underpin the emotional narrative of the film and grow a cohesive world for Dhowa.

4.5 Visual Style and Design

The visual style of Dhowa was developed to strike that sensitive balance between stylized realism and simplicity that allows an emotional and visually cohesive experience. Everything in the project-from characters to props and environments-is done in harmony and cohesion with one another while reflecting the thematic essence of the narrative. Luca and Coco were some of the animation films that inspired me to inculcate some lessons about proportion, texture, and visual balance while developing a style that could resonate with the audience. Clean, readable designs without unnecessary complexity yet still retaining enough detail to evoke authenticity was the approach emphasized. This was especially important with the team being in a learning-oriented phase of the project, since this made sure that any asset was both achievable and visually compelling. Textures had been specifically selected to further enhance object feel, adding that extra sense of depth and richness to this place called Dhowa. The use of stylized realism allowed us to take the imaginative nature of the story and give it something relatable and grounded so our audience wasn't lost from emotionally bonding to the scenes. The visual compositions were therefore planned in order to orient the viewer's attention towards some place in the telling of his story. This will involve aligning the designs to color palettes and light schemes, thus creating an atmosphere. By paying attention to one visual language, I could make such design decisions which would help in constructing the basic emotional impact of this film Dhowa and hence both visual and thematically deep.

4.6 Color Palette and Lighting

Light and color even more changed the emotional mood of Dhowa. For the color palette [22], I looked at the animated feature film Luca which conceptually provided the vibrant, warm and gentle tones for the colors. The colors from Luca informed the creation of a world that is colorful but realistic in order to serve the tenets of our story. I chose the colors of the characters and props as well as the colors that fit the color emotions and the movie itself. The aim was to be able to disturb and affect the audience's emotions through colors and make them understand the evolutionary of the plot. For instance, warm and earth-tone colors were used in scenes underscoring life in the community, while softer blue and grey tones were used in the moments of self-examination or struggle. These to an extend assisted in firmly establishing a dichotomous representation of hope and despair in the emotional peak and nadir of the story. The soft or rather diffused lighting used in the heart-warming scenes was also the same lighting used to portray the moods of the audience and which was the opposite in the sine qua non where tension and conflict was to be dominant. While

Figure 4.13: "Luca" Animated Film color Palette (A)

putting together the Luca-style colors with suitable lighting techniques, one had to make sure that all the components worked well together. There was an inspection of every scene so that its color and light's aesthetics were consistent and the emotional level of the movie

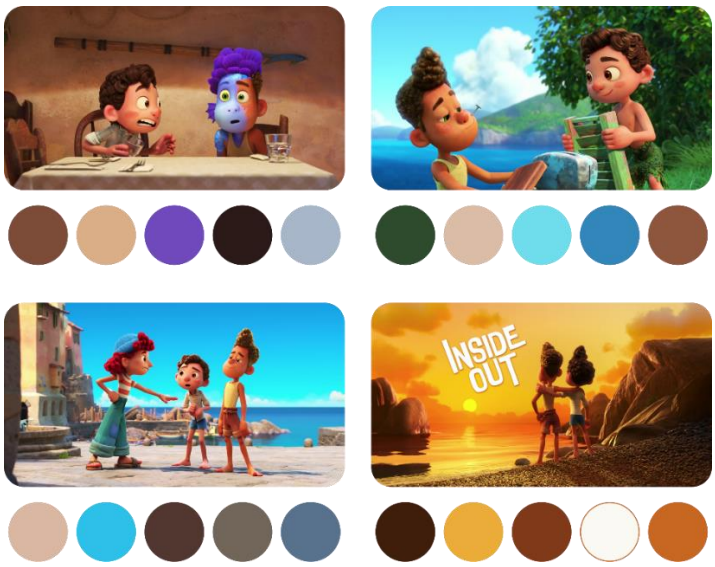


Figure 4.14: “Luca” Animated Film Color Palette (B)

was enhanced. During this time, I was able to create a feeling of fullness and consistency in the universe of Dhowa making the story more interesting and attractive to the audience.

4.7 Integration of Art Direction with Storytelling

In Dhowa, for that matter, the art direction was completely entangled with storytelling because each and every frame is capable of adding meaning to the told story. At the beginning itself, the design philosophy always revolved around the emotional and thematic core of the story, and thus each little or big detail of the visuals is considered and planned, letting it fit within the vision of the artist and drive a role in the development of the story. Choices regarding texture, color, and light have been chosen to provoke the feelings at key moments. Warm, vital colors evocative of Luca have been used for moments of hope and

Figure 4.15: “Dhowa” Animated Short-Film Color and Light

bonding, for example, while the more pensive, serious sides of this story have used more subdued tones. These help to create a rhythm similar to those within the character's emotional journeys, their visuals an extension of storytelling. The arrangement of props and sets was done in association with narration as well. Every frame had to be composed

Figure 4.16: “Dhowa” Animated Short-Film Textured Asset Implementation

so that it drew the viewer's notice to something very important because of certain story elements enhanced through light and composition to point to their importance. Through placing of props within structure of narration, they became dynamic participants for creating mood and atmosphere. Moreover, the consistent visual language maintained the

Figure 4.17: “Dhowa” Animated Short-Film Rendered Environment

viewers in Dhowa. Since art direction ran parallel to the emotional beats of the story, the visuals amplified the power of the story by being more relatable and entertaining. This integration of art direction and storytelling elevated the film in delivering its social message, thus leaving a mark on the viewers.

CHAPTER 5

3D Props Development

Making Dhowa required a number of keys for its completion, including developing 3D props that needed actually to be highly systematic. In this role, the designer has to create the detailed props- story-driven in coherence with an art direction and visual narrative of the film. Drawing a complete asset list in 3D is done first from the storyboard. Each asset was designed for a purpose in telling a story, setting the environment, and an emotional tone for the film. I was to design 38 unique 3D props, including modular assets like walls, roofs, and furniture, which were needed to construct Jahir Mia's poor quarter house. These would give me the needed flexibility and coherence in the general environment design. Apart from these, for outdoor scene beautification, some road props were designed: traffic lights, signboards, and street lamps. I have done the modeling in Autodesk Maya 2023, keeping the quad topology workflow to keep the geometries clean and efficient. Each asset has been properly UV-mapped with efficient texturing in mind. Textures are mainly created with Adobe Substance Painter, which allowed me to bring in grungy, dirty realistic details and edge wear, maintaining a stylized look from the movie. Other supporting texture works-that is, creating posters or written elements-were done in Adobe Photoshop and Illustrator. Props were designed with color and art direction in mind for Dhowa to ensure visual cohesion between all the elements. In total, I textured 38 assets, exporting them in a format prepared for Unreal Engine; in this engine, ambient occlusion, roughness, and metallic maps are packed in one file to enable fast rendering and real-time composition. Thus, it becomes structured, and the props in 3D help not only in serving their purpose but also enhance storyboarding for better immersion into the world of Dhowa.

5.1 Overview of 3D Props Development

In Dhowa, 3D props development was elaborated from a plan down to execution, ensuring that every element of the environment supported the storytelling and visual cohesion of the film. We began as a team compiling an asset list in 3D from the storyboard, indicating each prop that would set the narrative. This was the basis of task distribution; each of us was in charge of a certain category of props. My main task was to create road props and all other

supporting elements that were needed in the composition stage. It included, among others, modular elements for constructing Jahir Mia's humble quarters, making sure the surroundings were truly reflective of the conditions described in the story. I contributed a total of 38 3D models, which ranged from environmental to structural assets. While those were my focuses, the hero assets such as Jahir's rickshaw were designed by other teammates to make sure that workload was spread around the team effectively. Complementing our custom models, some free online assets were downloaded from various sources to fill the environment and complete the needs during the composition stage. Besides modeling, I was involved in texturing 38 assets, making sure everything fit within the color palette and visual style set during art direction. Making sure everything had a cohesive quality about the textures and color complemented each other to actually create the look and feeling intended for the film. It is then that I was very happy now that through a plan, with good teamwork, my role would be fulfilled in this development of 3D props to contribute immensely to world immersive and visually cohesive in Dhowa. This shall align with the theme, thus making it an interesting thing to watch.

5.2 3D Modeling Process

Dhowa's 3D modeling was a very important stage for the transformation of concept designs into real, usable assets that were to be used in animation. I have used Autodesk Maya for the whole scope of 3D modeling tasks, as this allows for strong, flexible tools and creating highly detailed and accurate models. First and foremost, my workflow always includes gathering references, organized on Pureref. This tool allowed me to compile the visual inspirations and made sure each asset stayed consistent with the look and feel I wanted for this project. A big part of my modeling process was having proper quad topology. Following this method, all the assets were clean and efficient for optimized smooth deformation when the animation or adjustments needed to be done in later parts of the production. Quad topology [23] allowed for better UV mapping [24] and texturing by creating a consistent structure that would let textures apply seamlessly. I wanted the creation of visually appealing, technically sound assets during the modeling process, with a main focus on proportion, detail, and edge flow that will make sure models were aligned

with the art direction, fitting in perfectly into the overall environment. Regarding the modular assets [25], such as those used for Jahir Mia's house, extra care was taken to make sure the pieces would fit and could be reused to save time without sacrificing quality. This systematic workflow not only streamlined the modeling process but also ensured that the assets were versatile and ready for the following stages of production.

5.2.1 Traffic Light

I started with basic shapes like boxes and cylinders to construct the main body and signal lights. Using the smooth and bevel tools, I ensured rounded edges for a polished appearance. The multi-cut tool was applied to add intricate details like the

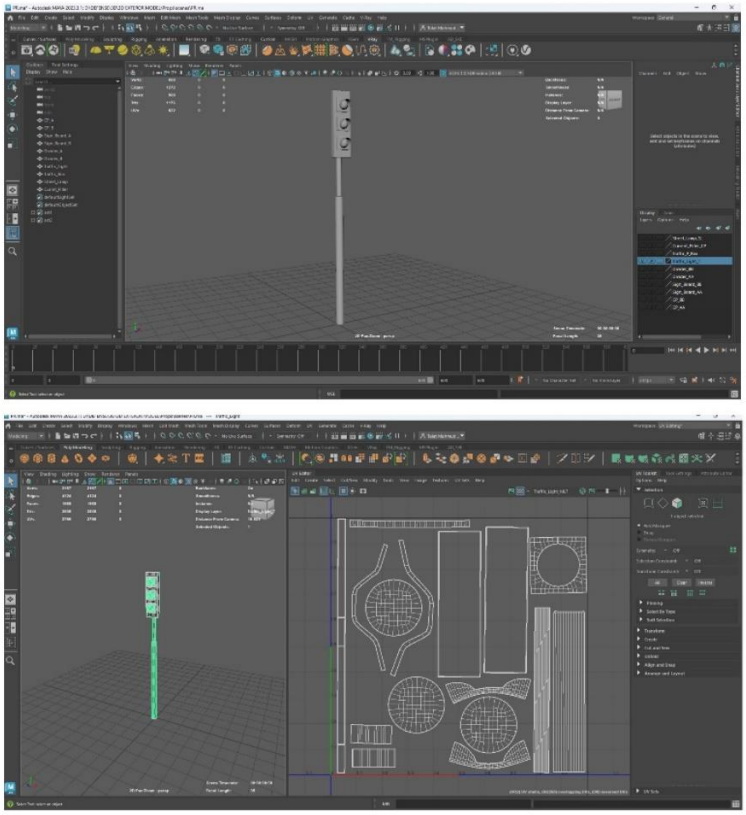


Figure 5.1: Traffic Light 3D Model And UV Mapping

signal frame and mounting brackets. Individual lights were modeled as separate components and then combined for efficiency. UV mapping was done with care to have the exact alignment of textures for light colors and metallic surfaces.

5.2.2 Traffic Police Box

A cube was used as the base for the traffic police box. I then used extrusion to form the box, adding windows and door frames with the multi-cut tool. Bevels were

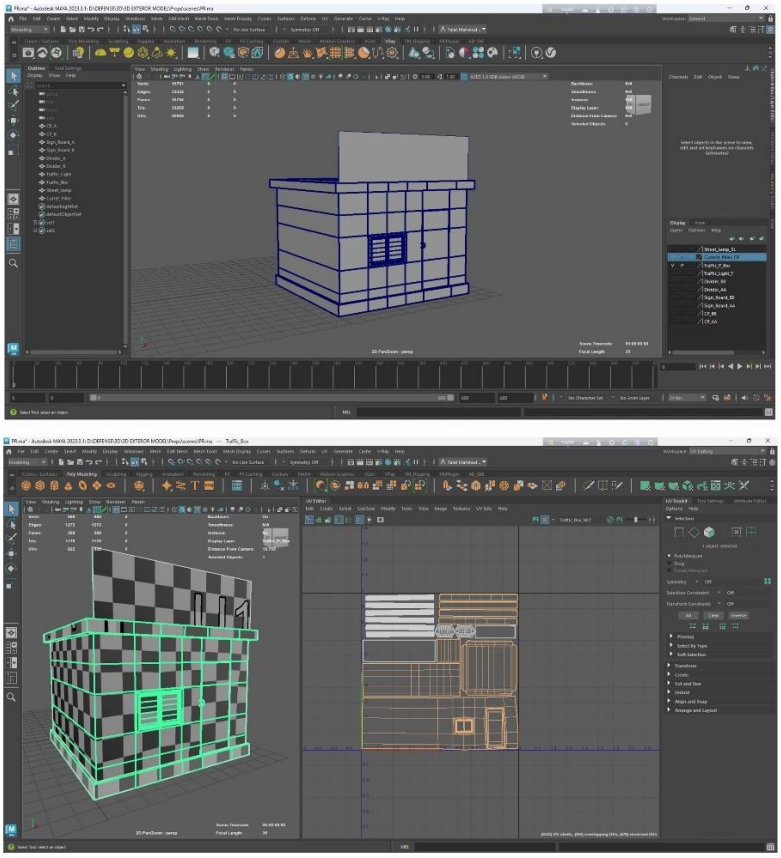


Figure 5.2: Traffic Police Box 3D Model And UV Mapping

applied to soften the edges and add a little more realism. Handles and locks were modeled separately and joined with the main structure. UV mapping was done to allow detailed textures for walls, signage, window, and door.

5.2.3 Electric Pillar

The electric pole was modeled by first making the base for the pole, using a cylinder. Crossbars and bolts were added using smaller cylindrical shapes. The transmitter was created from a cube. Multi-cut and extrude tools were used to make grooves and mounting points. Bevels were used to make all the edges smooth, like

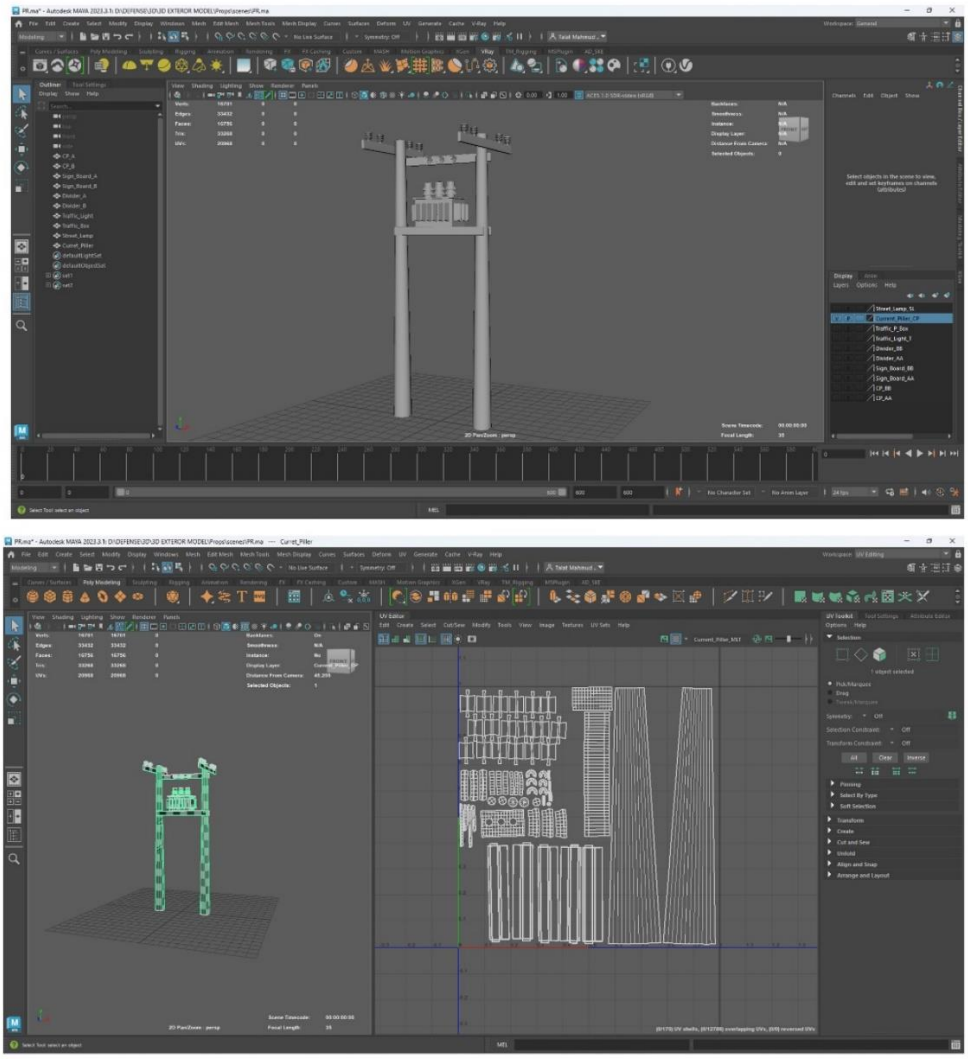


Figure 5.3: Electric Pillar 3D Model And UV Mapping

those of a metal piece. Laid out the UV map efficiently to ensure that the texture for metal and rust effects would be applied without any smudging.

5.2.4 Sign Board (A)

The base shape used for the square signboard was a cube. Extruding the edges of the board provided a strong frame that gave more depth and character to the design. Using the bevel tool, the edges were rounded for a smooth and professional finish. A square pole was

modeled for the stand with precise proportions to be stable and aligned properly. This has been carefully done, since the UV mapping would

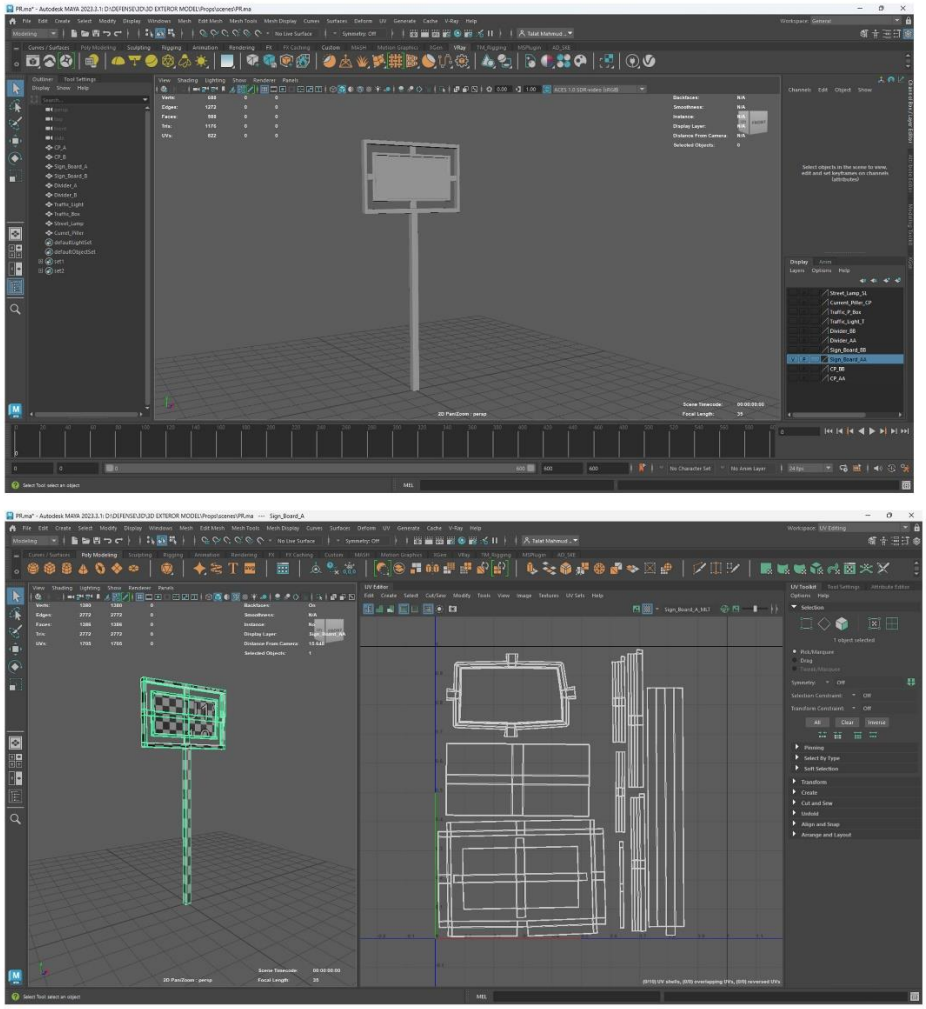


Figure 5.4: UV Mapping of Road Side Round Shape Sign Board Model

involve text and imagery on the signboard that requires clean and precise alignment of textures. Adding wear effects like scratches and faded paint gave it an extra touch of realism.

5.2.5 Sign Board (B)

The round signboard was made by using a cylinder as the base. I used bevel for the edges in order to get a smooth and polished finish. A circular frame was added to the sign to add more detail to it. For the stand, a separate cylindrical pole was

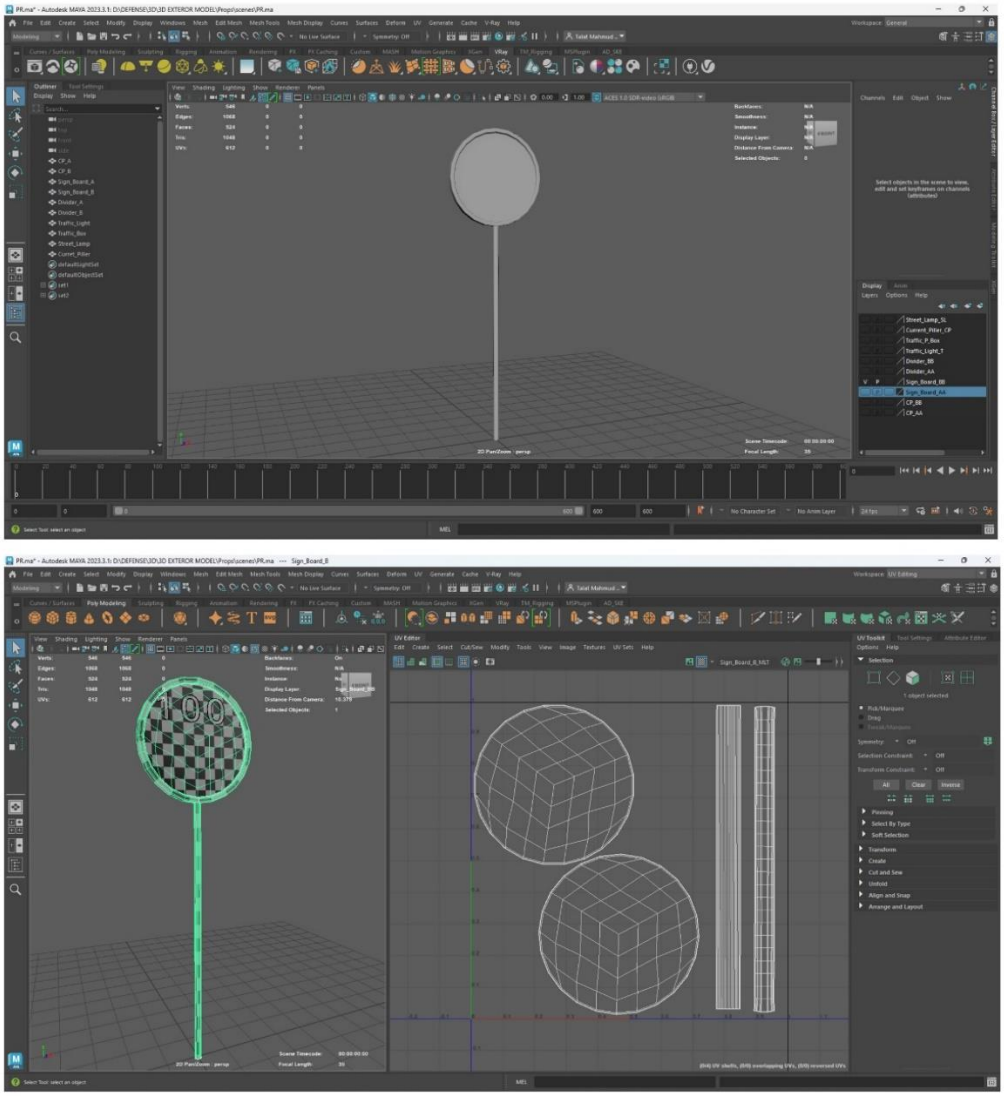


Figure 5.5: Road Side Round Shape Sign Board 3D Model And UV Mapping

modeled, and both were UV-mapped for correct texturing to allow for proper alignment in the case of a circular design and text.

5.2.6 Street Lamp

For the first step, I shaped the pole and, using edge extrusions, I extended it and made the holder for light and mounting arm from a cylinder. I used Smooth and Bevel tools to help me get more organic curves on this design. Additional details

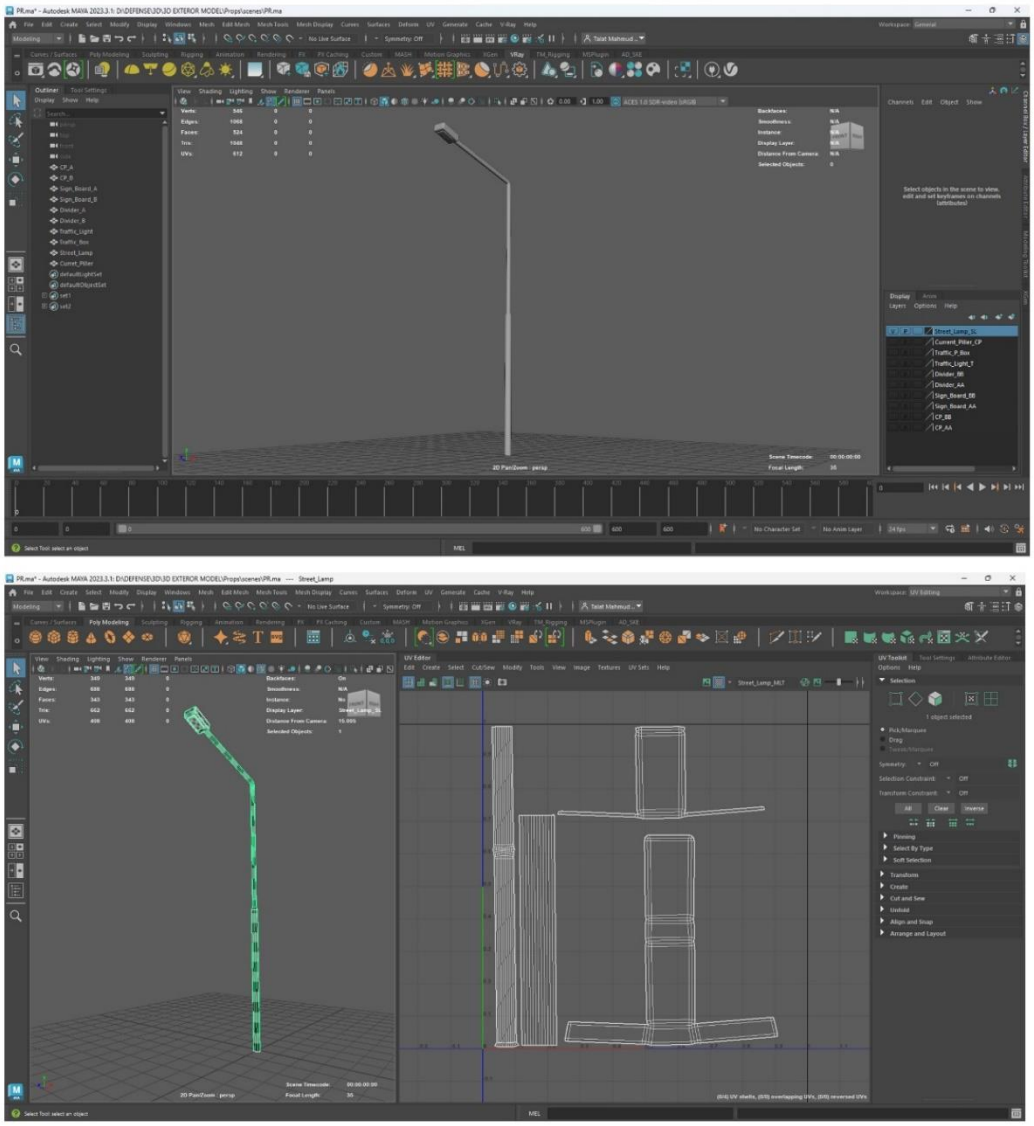


Figure 5.6: Street Lamp 3D Model And UV Mapping

were separately modeled, like light box, and attached to the main model. I made the UV layout to add metallic textures with reflective surfaces of the lamp.

5.2.7 Checkpoint Traffic (A)

A cube was the base for the stopper box. I added detail with the multi-cut tool. The edges were then beveled, so it looked smooth and sturdy. UV mapping had to be

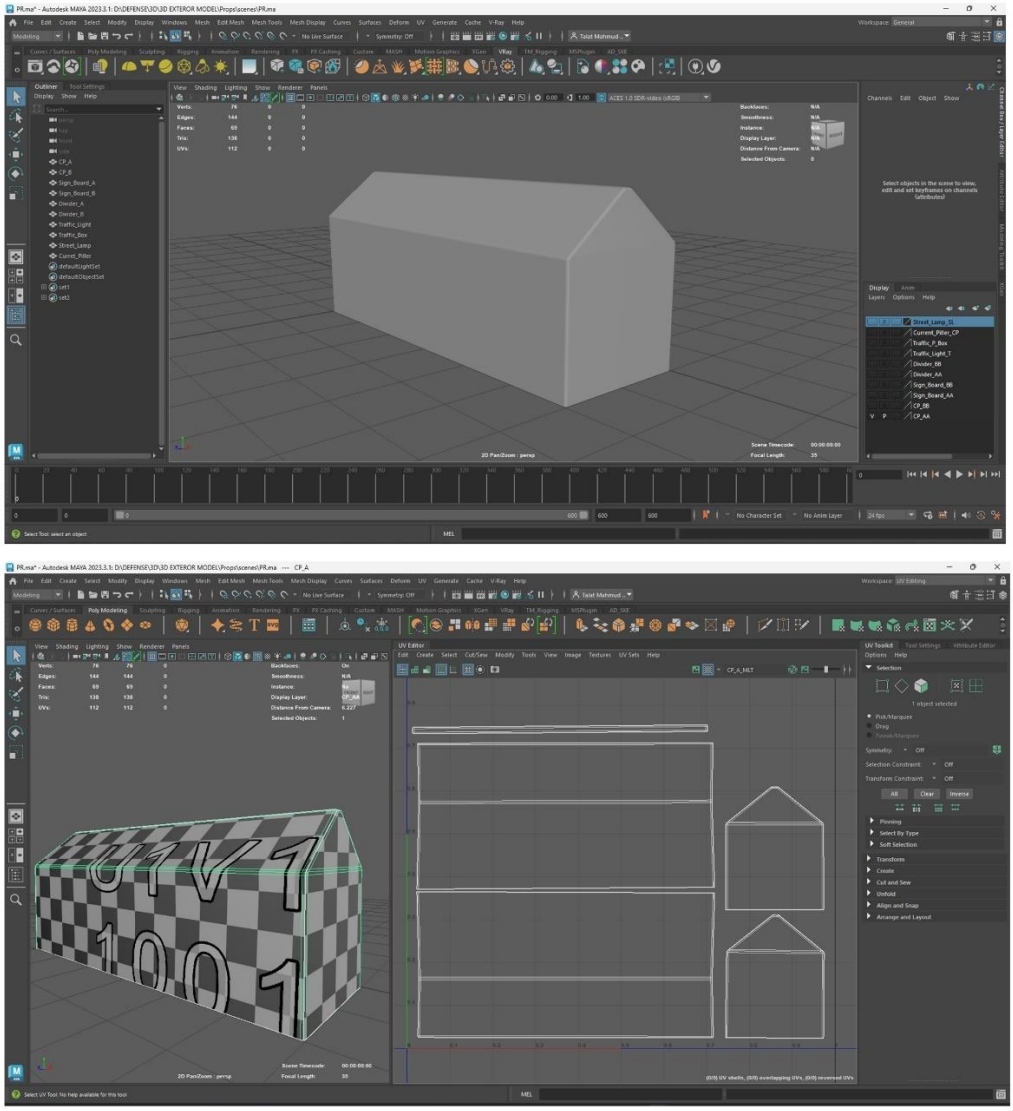


Figure 5.7: Traffic Checkpoint (A) 3D Model And UV Mapping

performed in order for the textures to fit properly so that clear and realistic visuals, such as painted metal and labels, could be shown.

5.2.8 Checkpoint Traffic (B)

For the modeling of the stopper, the base and the vertical posts were modeled with cylinders. Bevel and smooth tools were used in order to refine the metallic edges. The metal sticks were separately modeled and attached to the structure. UV

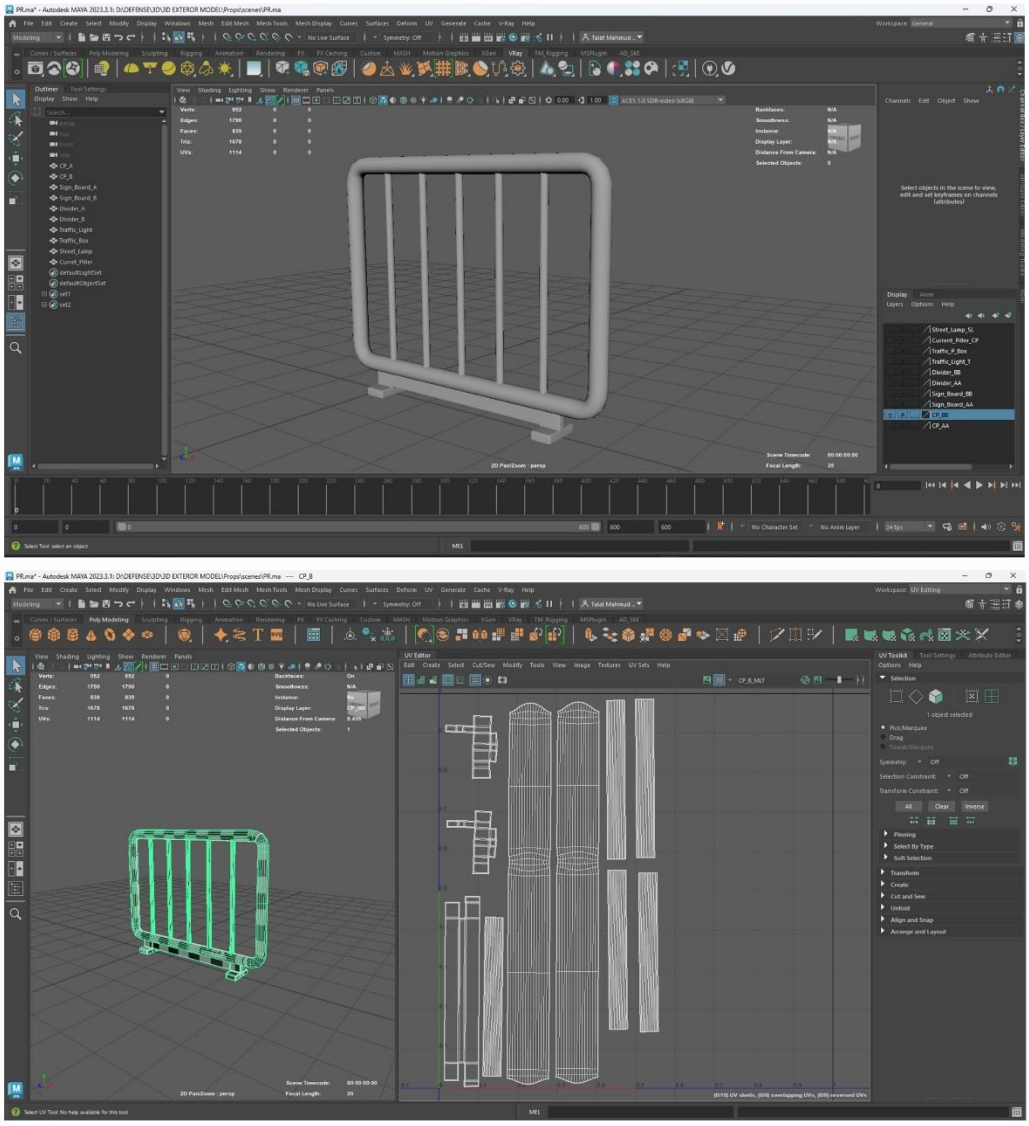


Figure 5.8: Traffic Checkpoint (B) 3D Model And UV Mapping

mapping was optimized in such a way as to allow the stopper to have reflective metal textures and a realistic appearance.

5.2.9 Road Divider (A)

I began with a cube for the base and used rectangular shapes for the vertical dividers. Extrude and multi-cut tools were used to add grooves and depth,

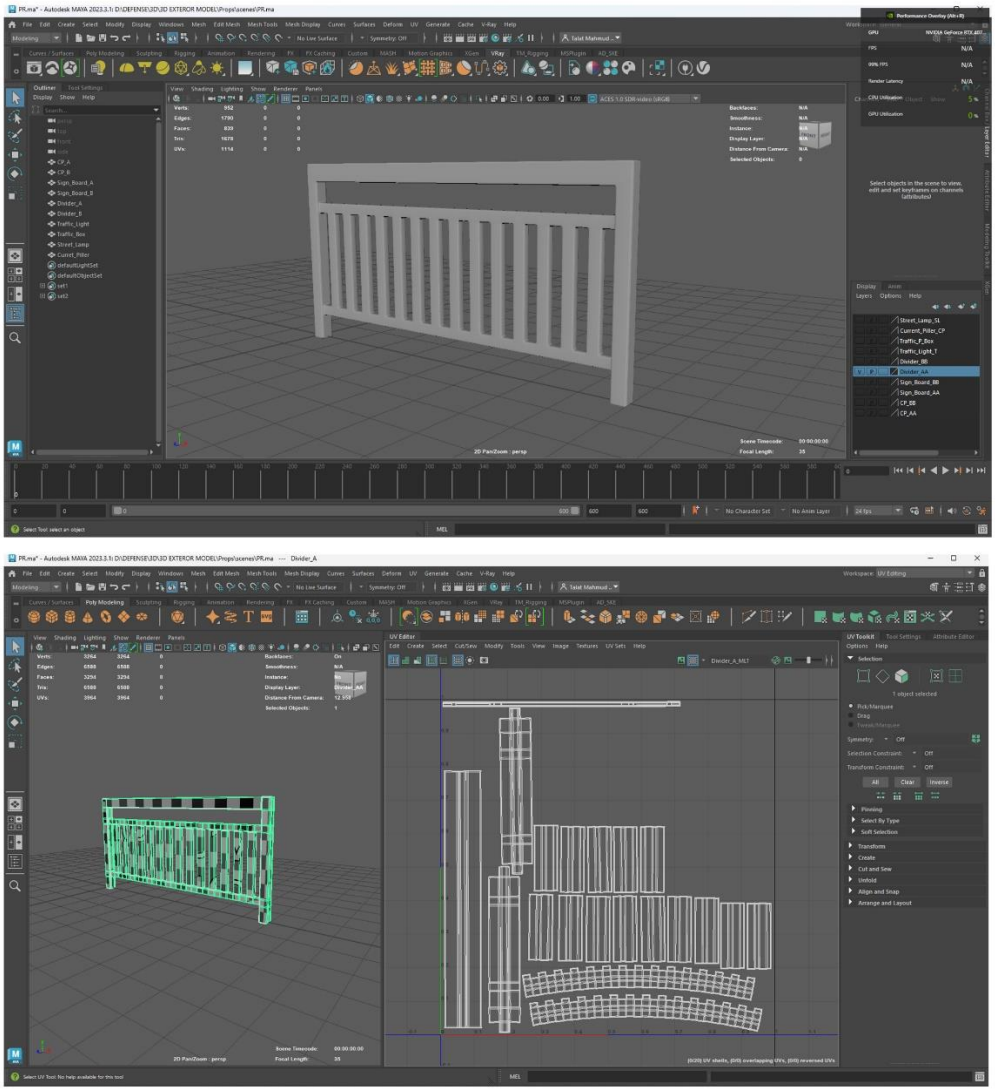


Figure 5.9: Road Divider (A) 3D Model And UV Mapping

mimicking a sturdy iron design. The UV layout was carefully adjusted to handle textures like rust and painted metal, ensuring a realistic look.

5.2.10 Road Divider (B)

For the cone-shaped divider, I started with a primitive cube and added grooves and ridges using the multi-cut tool. The base was refined using the bevel tool to smooth

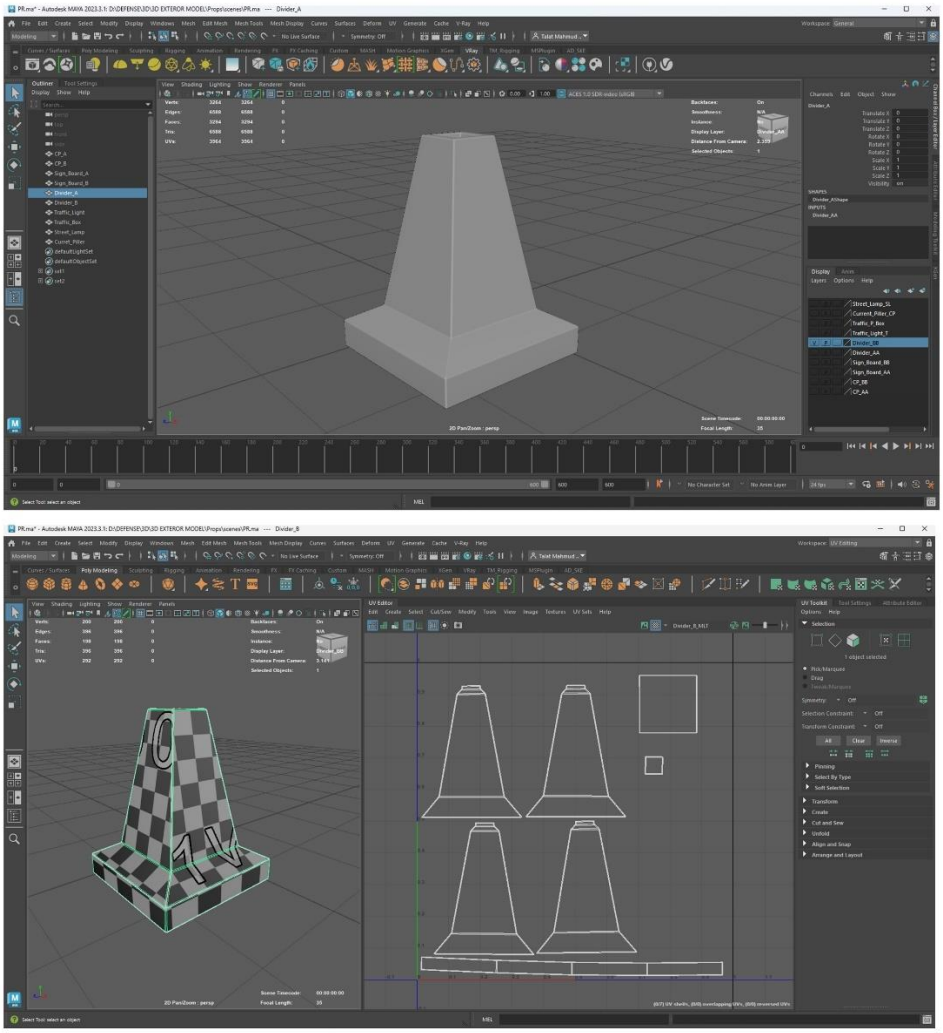


Figure 5.10: Road Divider (B) 3D Model And UV Mapping

the edges and add detail. UV mapping was straightforward, ensuring alignment for plastic patterns and reflective surfaces to create a polished, realistic appearance.

5.2.11 Sky Lantern Packet

The base shape used for the sky lantern packet was a cube. The edges were carefully beveled to smoothen the structure and give it a polyethene-like appearance. For creating folds and other minute details, some parts of the packet were subjected to extrusion techniques that would give a crumpled and layered effect, as seen in real packaging. UV mapping was aligned with great detail so that all text and design

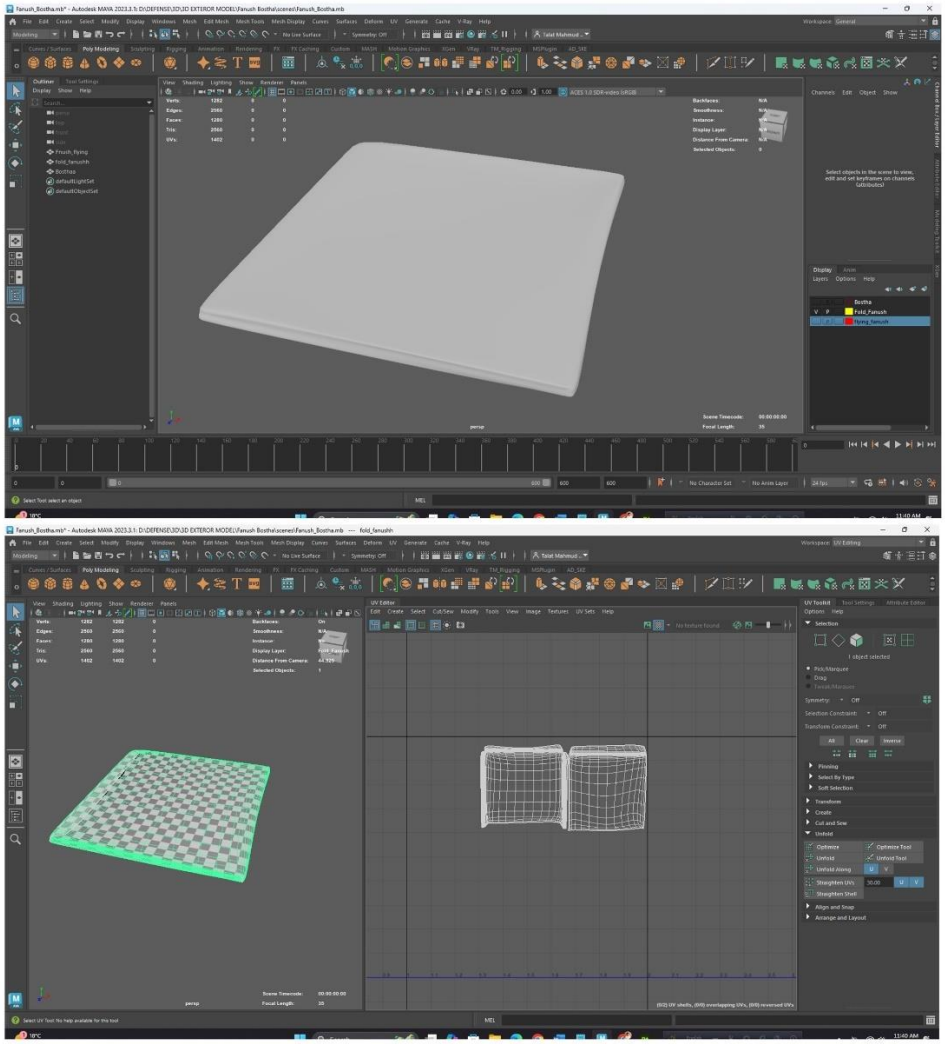


Figure 5.11: Sky Lantern Packet 3D Model And UV Mapping

elements on the packet appeared crisp and precise. Detailing of patterns, logos, and text to give it a colorful, realistic look is what texturing involves. And the result was exactly like a real polyethene packet with depth and realistic light reflection.

5.2.12 Flying Lantern

For the lantern structure, a cube was used. The top and bottom were reshaped with the multi-cut and smooth tools to create the soft, rounded edges of flying lanterns. Other details like the wire frame and inner light source were modeled with smaller

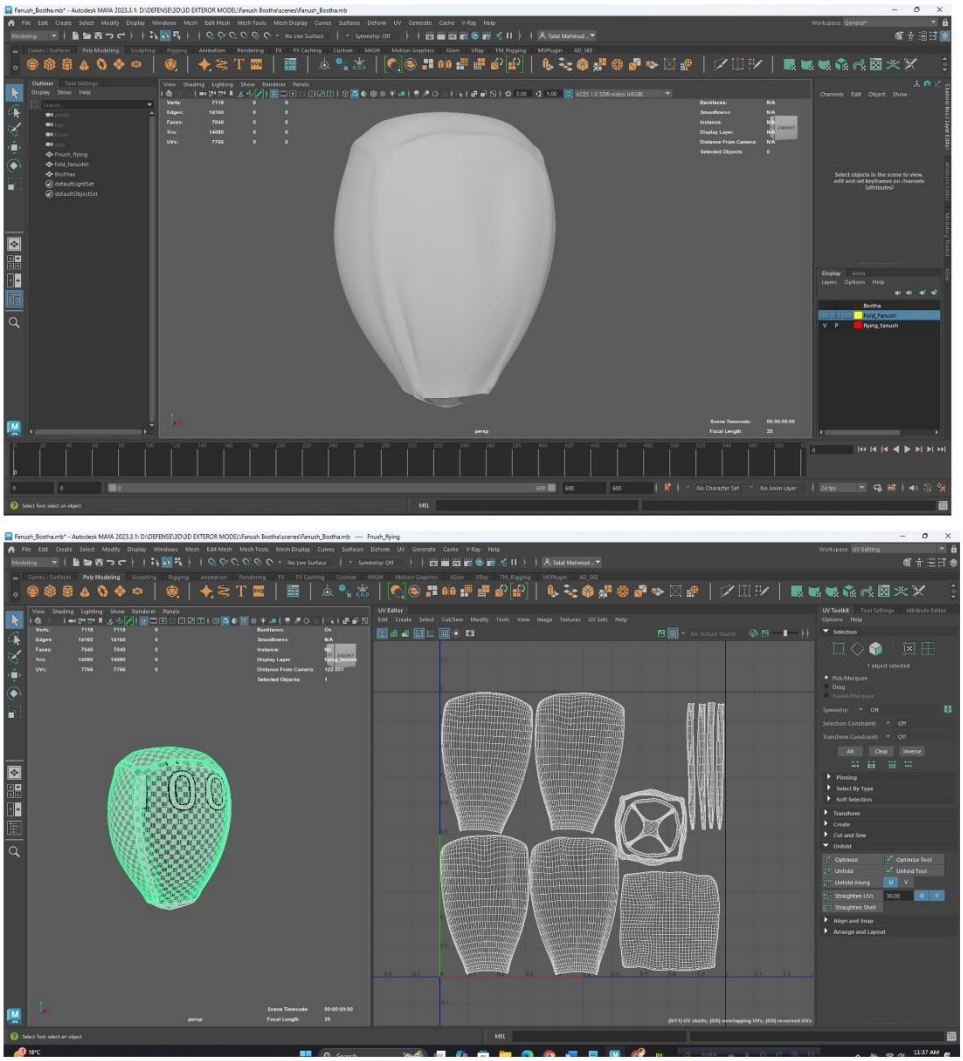


Figure 5.12: Flying Lantern 3D Model And UV Mapping

shapes. Seamless texture application like paper material and glowing effects was possible with the UV map.

5.2.13 Sack

The sack was modeled starting from a cylinder primitive, with height and width adjustments to get it into the shape of a bag. Slight deformation was done using Maya's soft selection tool to simulate how a real sack would not be fully even with its seams when filled. Adding edge loops using the multi-cut tool defined creases

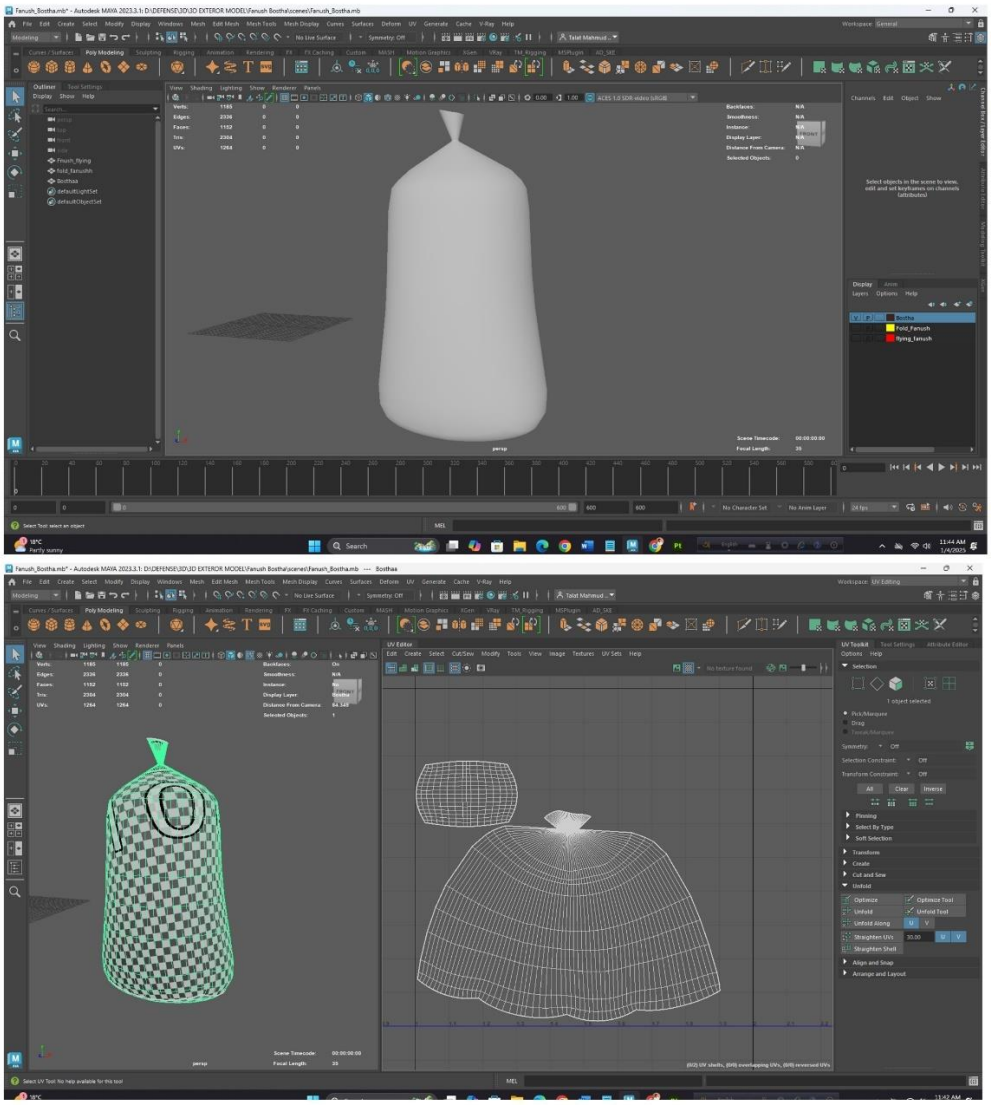


Figure 5.13: Sack 3D Model And UV Mapping

and folds. For the tied part at the top, I inward-extruded the edges to shape it like a drawstring closure. I did a careful lay-out of UV mapping and took it in Substance Painter, where I added fabric textures, dirt, and stitching details to give the sack a realistic and worn look.

5.2.14 Ceiling Fan

This ceiling fan design started with a cylinder for the center motor. Flat planes were used for designing the blades by extruding and molding. The edges were smoothed

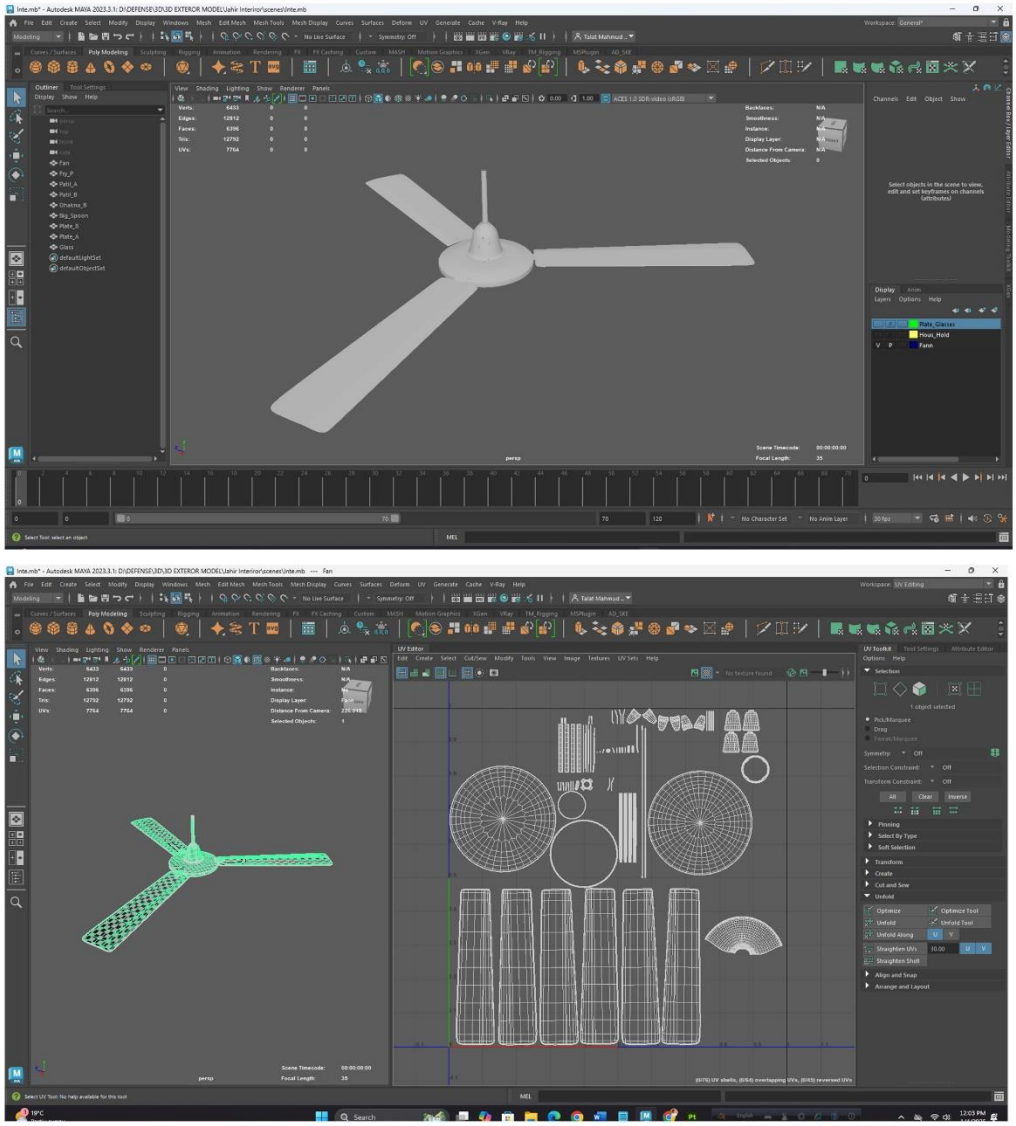


Figure 5.14: Ceiling Fan 3D Model And UV Mapping

and beveled for added realism. Screws and grooves were modeled for the mounting bracket. Metallic and painted surface textures would be supported by a UV map.

5.2.15 Plate, Glass, Spoon

Each object has its simple form from which it is built from scratch: a flat disc for the plate, a cylinder for the glass, and a stretched cube for the spoon. Smooth and multi-cut tools were used in refining the shapes and adding finer details, such as

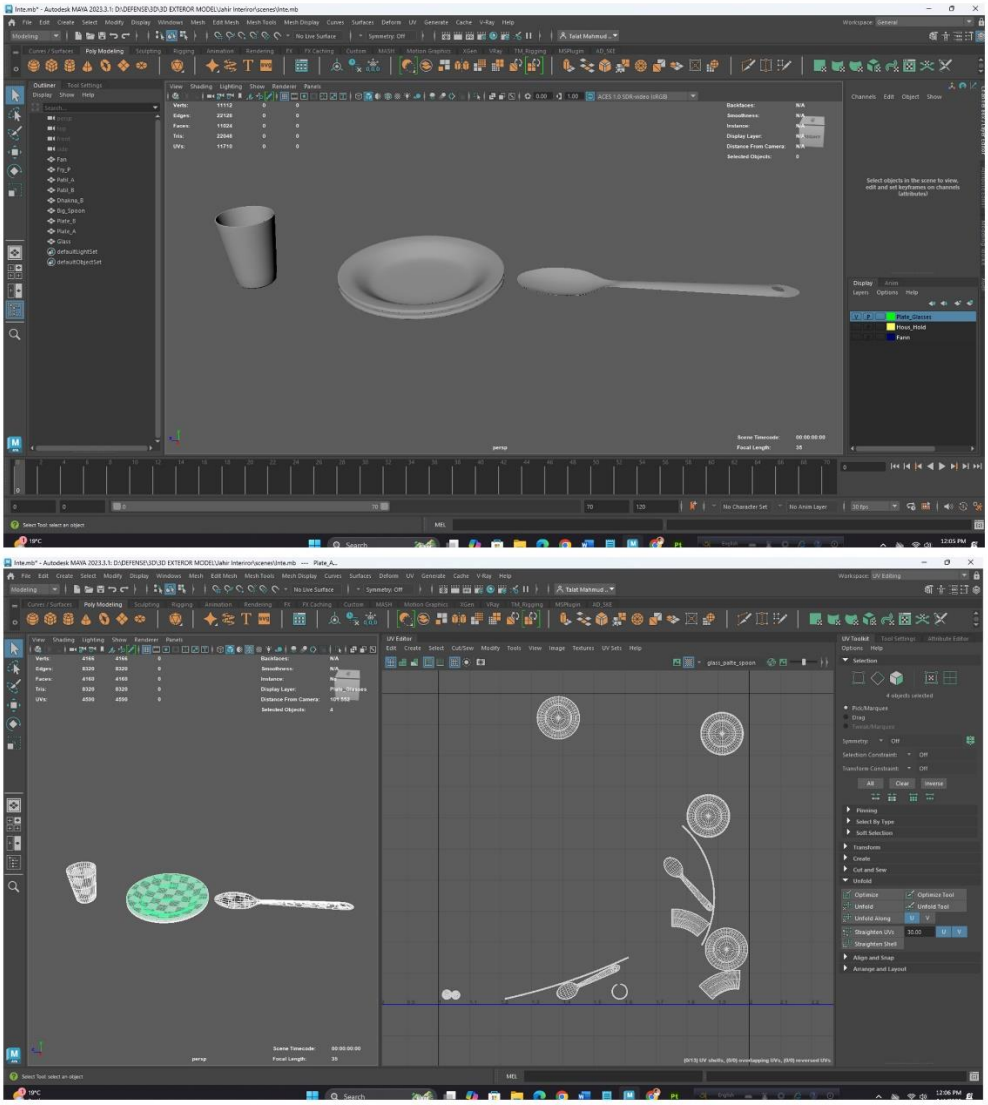


Figure 5.15: Plate, Glass and Spoon 3D Model And UV Mapping

curves and thickness. UV mapping was done with care, enabling detailed and high-quality textures. The plate and spoon were given textures of polished ceramic and metallic surface finish; the glass had a transparent reflective surface to depict its appearance in the real world.

5.2.16 Cooking Pots

The pots were created based on a cylinder for the base. Smooth tools rounded out the edges, and the multi-cut tool created grooves and other details. Realistic textures

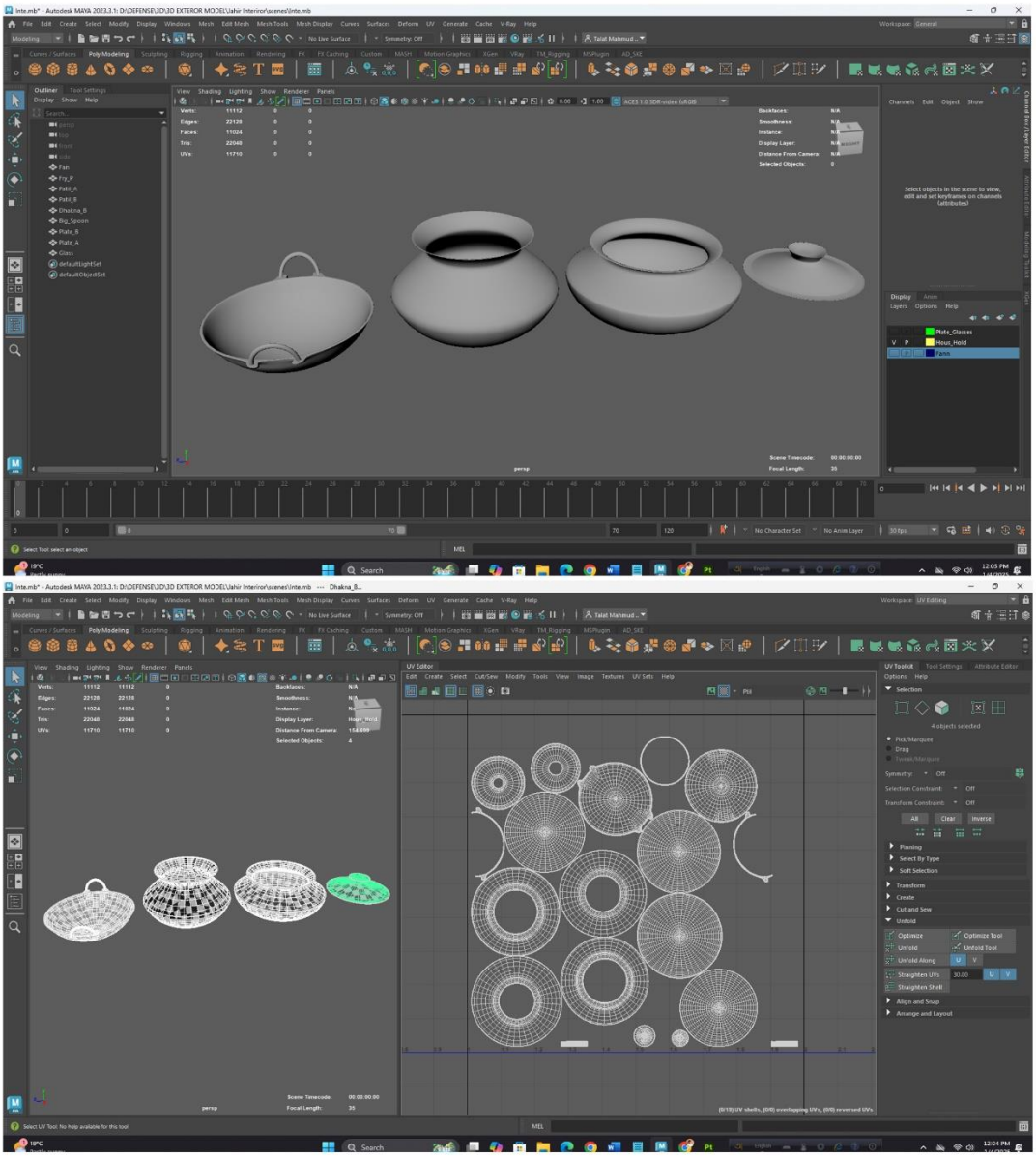


Figure 5.16: Cooking Pots 3D Model And UV Mapping

that resembled either stainless steel or cast iron, along with added grunge effects, were obtained using UV mapping.

5.2.17 Result and Notice Paper

The flat plane was used for the result and notice paper, with slight deformation in it so as to give a more realistic appearance-like crinkles on a paper would do. The

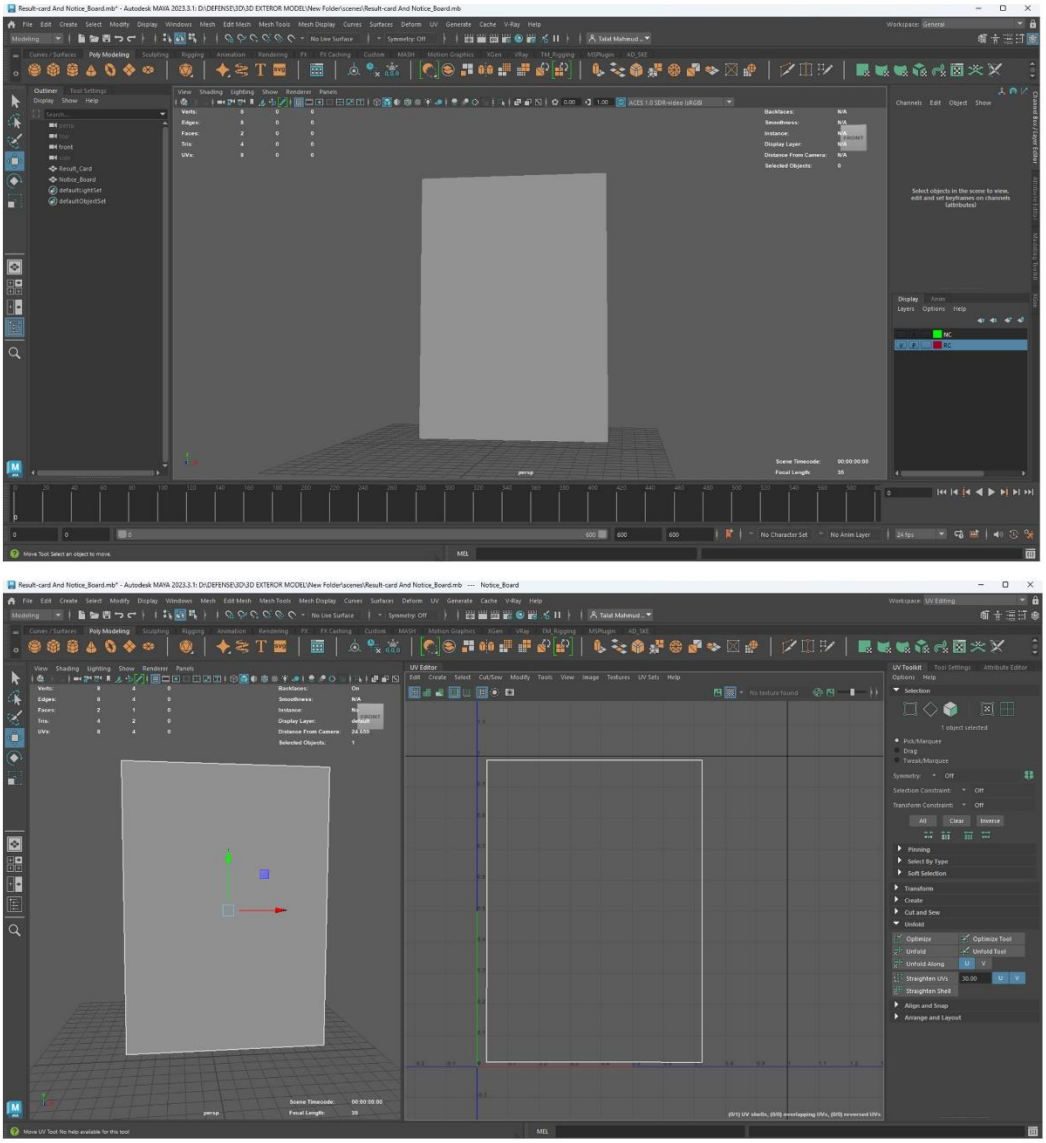


Figure 5.17: Result and Notice Paper 3D Model And UV Mapping

UV layout was done efficiently in order to be able to make detailed texturing, for instance, text, logos, handwriting effects, etc.

5.2.18 Modular Components

The base was a rectangular plane with extrusions for grooves and cracks. Careful UV mapping was done in order to accommodate textures of concrete, bricks, or wooden panels.

A flat plane was taken and manipulated into waves with the usage of the edge deformation. It is further refined for edge-smoothening and beveling. It will also provide a clear UV map that perfectly aligns for reflective metal texture and weathering effects.

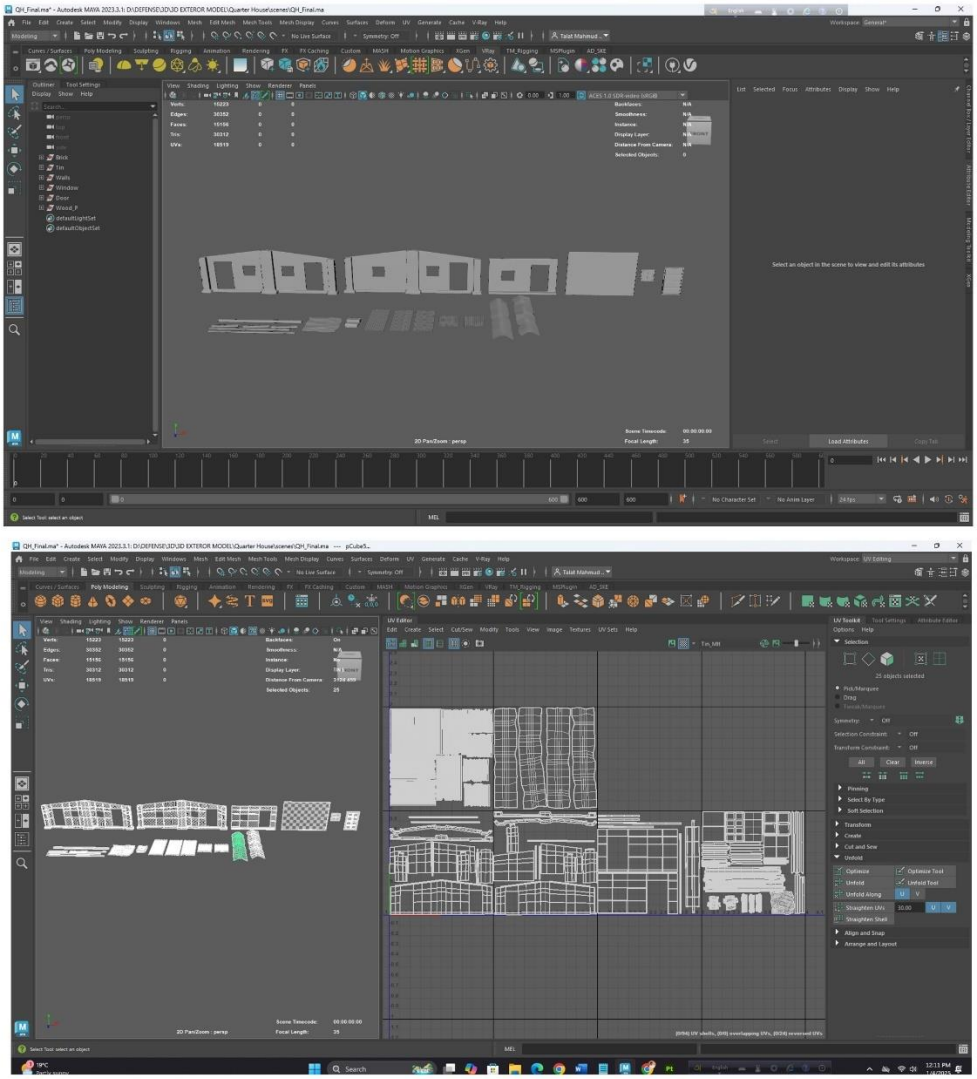


Figure 5.18: All Modular components 3D Model And UV Mapping

The wood planks were modeled using stretched cubes. The multi-cut tool was used to add grooves and details of the grain. UV mapping was aligned in order to apply the wood textures, including grain patterns and scratches.

The door and window frames were modeled from basic rectangular shapes, while the details of grooves and handles were achieved with multi-cut and extrusion tools. Smoothing of edges was done with bevels, while UV maps allowed detailed texturing such as wood grain and painted surfaces.

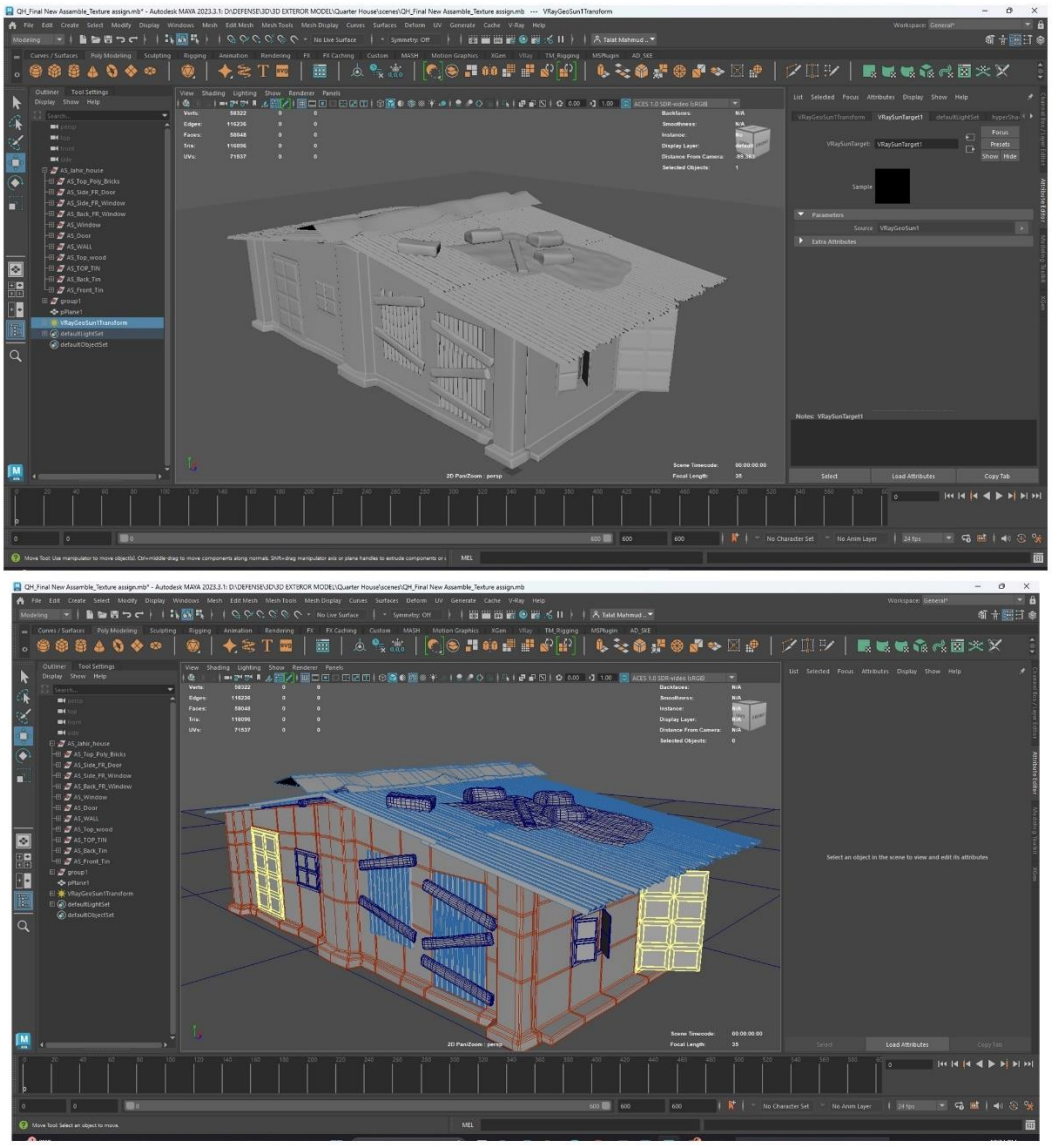


Figure 5.19: Combined Modular Assets

Individual bricks were modeled as slightly deformed cubes for realism. The UV layout was set for the uniform application of brick textures with variations in color and weathering effects.

A simple plane was taken and distorted in shape in order to provide it the resemblance of fold and crinkle present naturally on plastic sheets. Mapped UV according to which semitransparent texture with subtle pattern and highlights used.

5.3 Texturing Process

The texturing was a key part of the preparation of 3D assets for Dhowa, to make every model visually appealing while fitting perfectly into the art direction of the film. To this end, I have been working on the FBX formats [26] of 3D assets for texturing, mostly in Adobe Substance Painter. This powerful software allowed me to produce highly detailed textures while keeping the visuals vibrant but slightly stylized, inspired by Luca. First, base colors had been applied in such a way that they matched the color palette predefined for the project, so that consistency could be maintained across all the assets. Grunge effects, dirt layers, and wear on metal edges were added to give it some depth and realism. Besides, all these elements added much appeal and gave the assets an aspect of wear and tear to add to the realism in the film's environment. Realism was important, but I needed to balance it with subtlety in stylizing the elements so as to retain the artistic tone of Dhowa. Other than Substance Painter, I used Adobe Photoshop and Adobe Illustrator for particular design needs-for example, creating posters, text, and all other graphic elements that directly apply to props. It's great for adding storytelling details like written messages or ornaments, enhancing the quality of storytelling in the assets. The above textures were all exported in 8-bit PNG format to enable better Unreal Engine [27] performance due to taking advantages of its packed template [28]. This template allowed the compression of three key texture maps-Ambient Occlusion, Roughness, and Metallic-into one map using different color channels: Red, Green, and Blue. This further simplified the workflow for my colleagues in terms of quickly connecting texture maps with the 3D assets in the composition stage and really saved time for a smooth integration process. Not only were the 3D models brought to life by carefully planning and executing in texturing, but also this played an important role in maintaining the overall consistency of visuals and efficiency inside the project. Detailed and considerate texturing made sure each asset not only looked good but also fit within the narrative world of Dhowa.

5.3.1 Traffic Light

The texture in the traffic light was done through Adobe Substance Painter, keeping to the color of the project created. A Metallic texture was then applied on its base structure while implementing smart masks as a way of adding more detail in wear

Figure 5.20: Traffic Light in Substance Painter And Iray Render

and tear. After applying grunge along with dirt layers along its edges. A glass material was applied to the signal lights, adding slight roughness to achieve a see-through effect and assure that light would naturally diffuse from it. The contrast of metallic tones with weathered surfaces made the model realistic yet balanced with the stylized nature of the project. It reflects a mix of functionality and an artistic direction to move in line with the theme of the short film.

5.3.2 Traffic Police Box

The texturing of the traffic police box started with a concrete-like texture for the structure, using roughness maps to simulate the weathering and aging process. Further layers for dirt and scratches were added to enhance the indication of environmental exposure. Smart masks were used to highlight areas that would

Figure 5.21: Iray Render Image of Traffic Police Box And Iray Render

naturally have collected grime, such as corners and edges. Metallic shaders textured the door and window frames to match the color palette of the project, while subtle reflections provided a polished, worn look. The labels and logos were created using Adobe Illustrator and seamlessly integrated into the texture maps. These mindful details were required so that the asset could convey functionality just as much as realism.

5.3.3 Electric Pillar

It entailed starting off with an outdoors exposed-like grainy concrete structure for the basic texturing of the electric pillar, thereafter to be made somewhat interesting through minute alterations to its roughness and color maps for an appearance closer

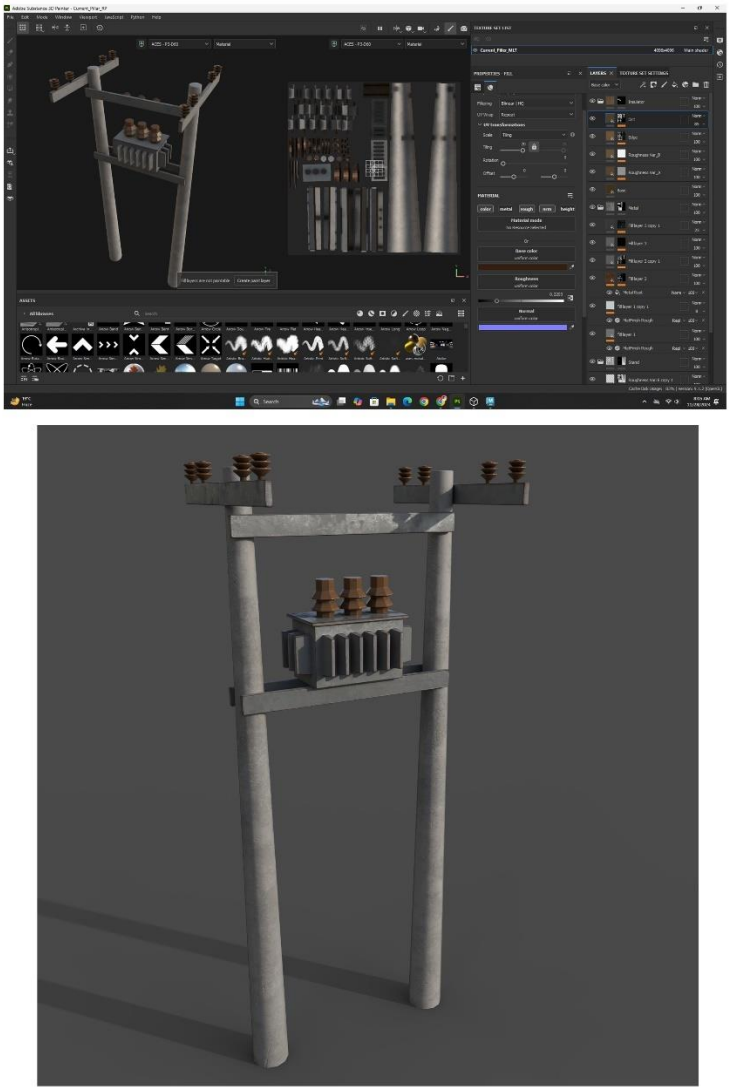


Figure 5.22: Electric Pillar in Substance Painter And Iray Render

to realism. The other features like metal screws and clamps would include very high edge highlights with rust overlays for the worn tear effects. This involves detailing at strategic levels such that it gives the right weathered look but is also cohesive to the project aesthetic. With Adobe Substance Painter, this could be fine-tuned to get the result perfect.

5.3.4 Signboard (A)

The material for this square-shaped signboard should be dark red and of a matte nature over the metal framework. Also, scratches and scuff marks should be

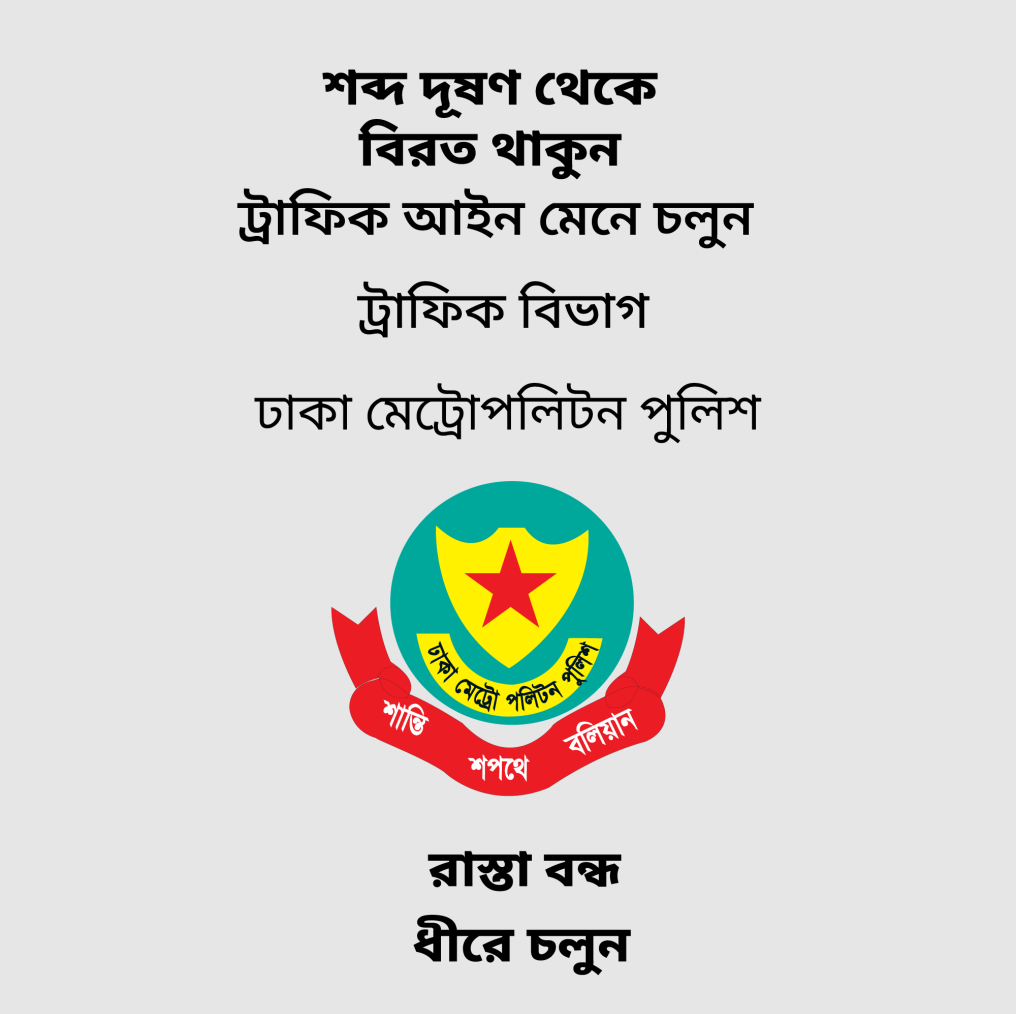


Figure 5.23: Required Labels and Logo

developed on the metal framework to make the object look rusty. Bright, clean colors from the established palette were used to create visual contrast on the surface of the sign. Subtle layers of dust and grime were applied using smart masks for added realism. Labels and logos designed in Adobe Illustrator were mapped onto the surface of the sign to enhance its narrative function within the environment.

Figure 5.24: Squire Shape Signboard in Substance Painter And Iray Render

The final texture was well-balanced between clarity and wear, making it pop without looking out of place in the scene.

5.3.5 Signboard (B)

The signboard, which is round in shape, followed a similar workflow as Signboard A. In this case, achieving a worn metallic frame was targeted. First, the texturing began by

applying a scratched and weathered metallic texture to the frame. The face of the sign had neat, stylized text and graphics painted with vibrant colors

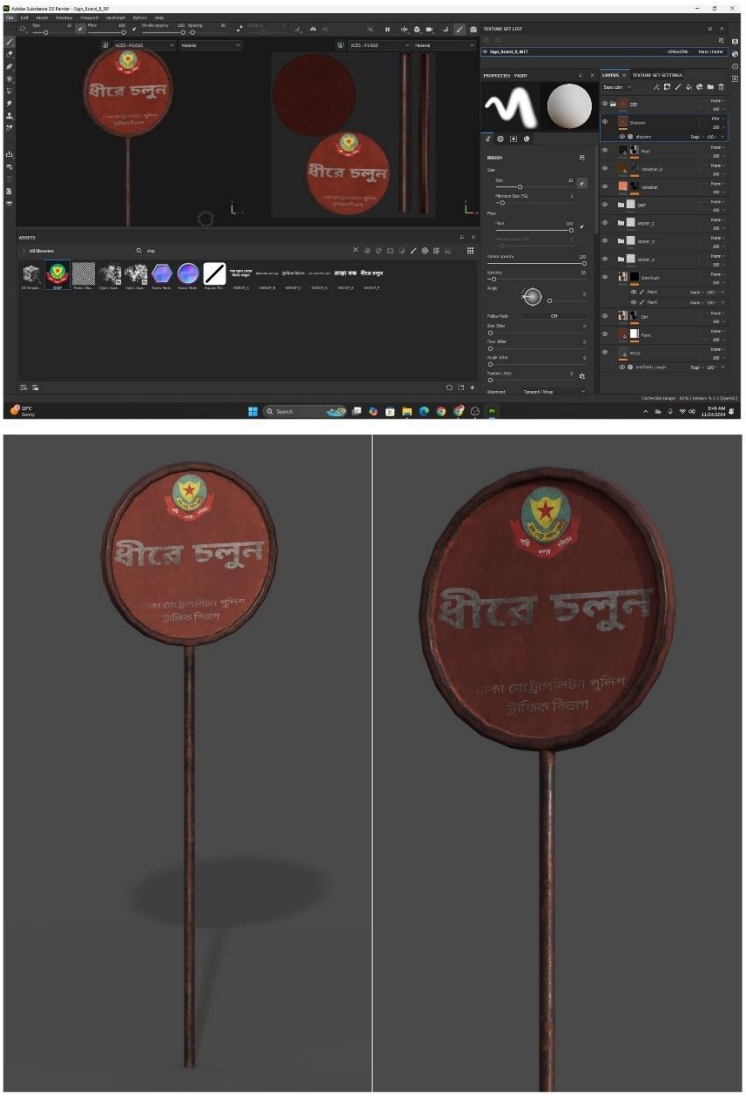


Figure 5.25: Round Shape Signboard in Substance Painter And Iray Render

according to the color palette of the project. Subtle layers of dust and grunge were added to make the sign fit into the environment. Most of these effects were created in Adobe Substance Painter, while Illustrator was used to create the custom text and graphics. The result was realistic yet stylized, fitting perfectly into the overall scene.

5.3.6 Street Lamp

First, texturing of the street lamp was done with a dark metallic shader applied to the pole, then adding dirt and scratch layers at the bottom of it to show that it has been exposed to the weather. After that, material for the glass of the lamp was

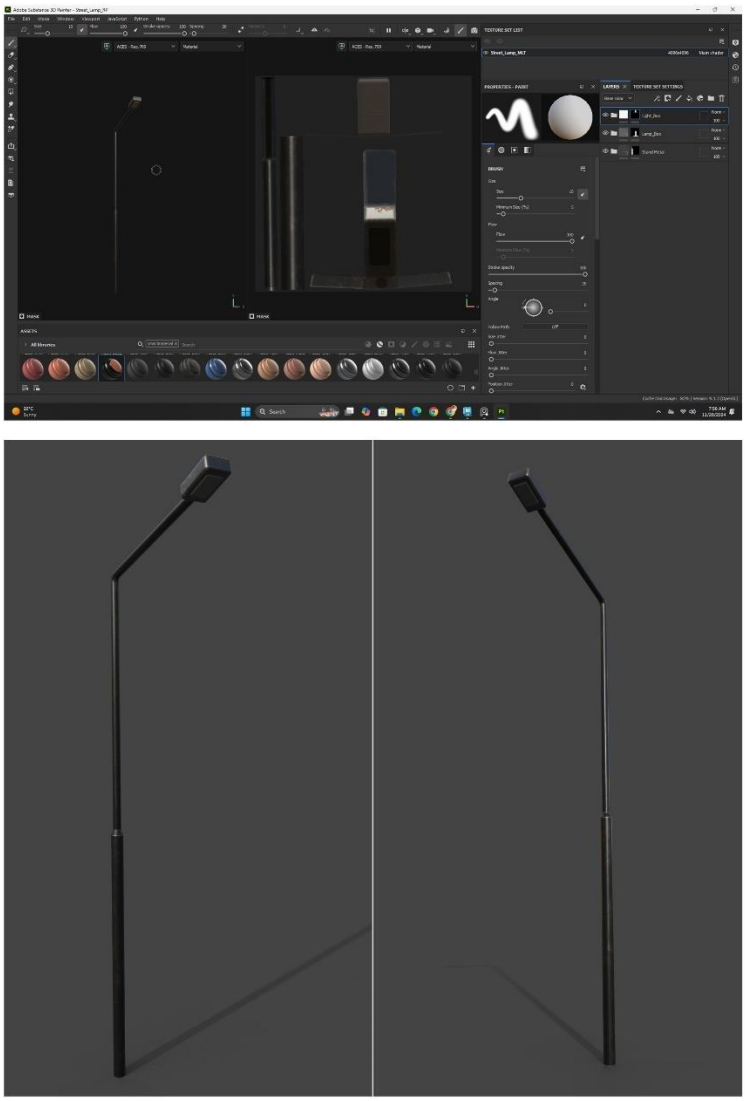


Figure 5.26: Street Lamp in Substance Painter And Iray Render

created with a slightly frosted look by adjusting the roughness and transparency settings. These details allowed the lamp to convey both realism and functionality. Adding a few more subtle grunge layers helped with the visual storytelling of the model. This approach

made the street lamp feel grounded in its environment, while still upholding the stylized aesthetic of the project.

5.3.7 Checkpoint Traffic (A)

The checkpoint traffic stopper box was textured with a mix of bright colors in order to have the box prominent within the scene. Metallic shaders were applied on the surface, dirt and grime layered around the edges for the wear and tear of constant

Figure 5.27: Checkpoint Traffic (A) in Substance Painter And Iray Render

use. Smart masks are used to highlight places where accumulation of dirt and grime would occur naturally. Labels and logos, designed in Adobe Illustrator, were added to the texture

map, which maintained the functional identity of the box. The texturing added a nice balance between stylization and realism that contributed to the vibrancy of the scene.

5.3.8 Checkpoint Traffic (B)

Appropriate steps toward getting a reflective yet smooth finish have involved the addition of polished metallic shaders in respect to the stopper in stainless steel. Fingerprints and wear were achieved subtly with added layers of grunge. It ensured

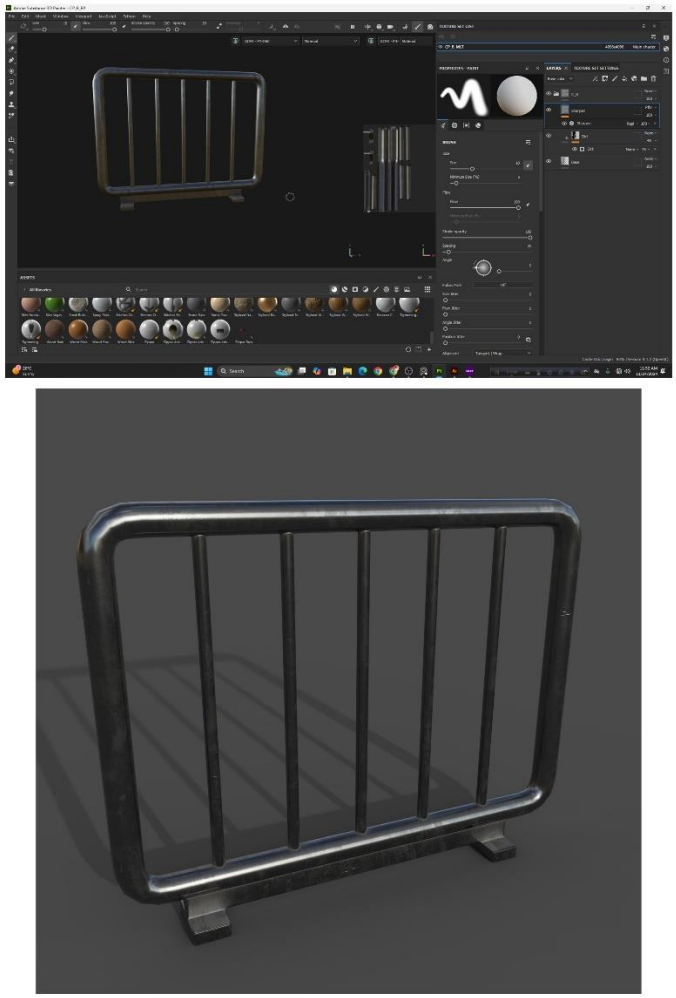


Figure 5.28: Checkpoint Traffic (B) in Substance Painter And Iray Render

that adjustments would be possible inside a rough map to maintain perfect balance in relation to being a clean but not really highly weathered piece, keeping the stopper properly

grounded in space. It became subtle while still allowing proper functionality within aesthetic appearance.

5.3.9 Road Divider (A)

The iron road divider had a rugged metal texture to show its strength and that it was out in the open. Rust patches were subtly painted on with the use of roughness maps and overlay techniques, highlighting areas that would be more susceptible to

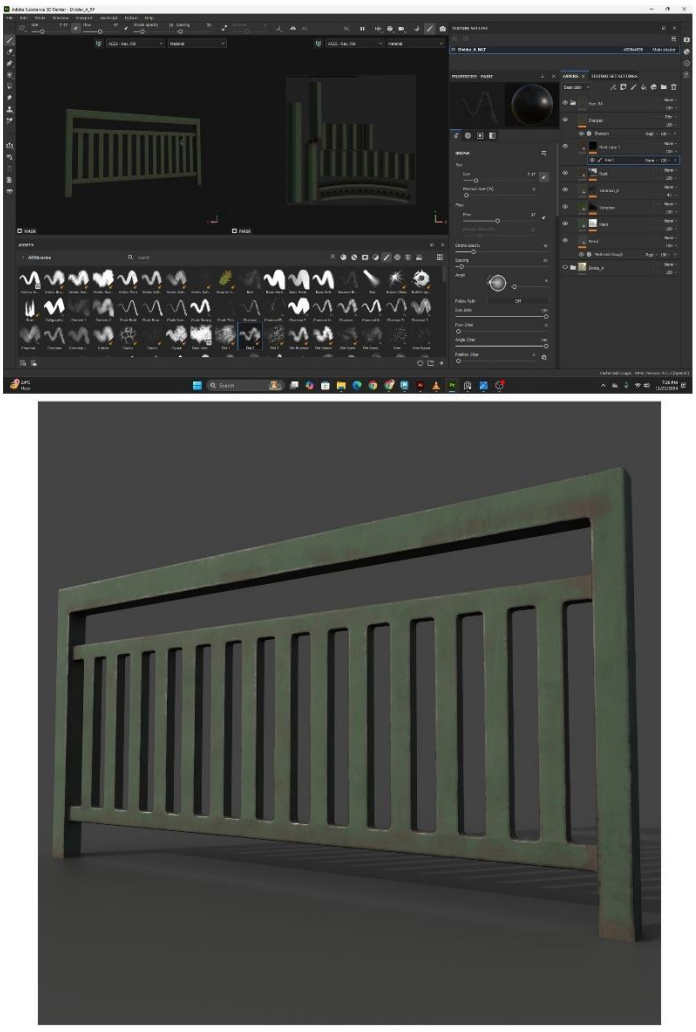


Figure 5.29: Road Divider (A) in Substance Painter And Iray Render

weathering. Organic grime buildup, along with edge highlights, was achieved using smart masks to add a sense of realism and depth. A dark green metallic texture was laid on the

base for a sturdy and resilient look. It needed to have a texture with a balance of rough and worn and at the same time fit into the polished design of the project. It was a realistic prop, coherent in the scene, turning out very well in its environment, adding that touch of realism and practicality.

5.3.10 Road Divider (B)

The plastic road divider had to be given a texture in a bright color palette to make it noticeable. Large values of roughness were used to create the matte surface that

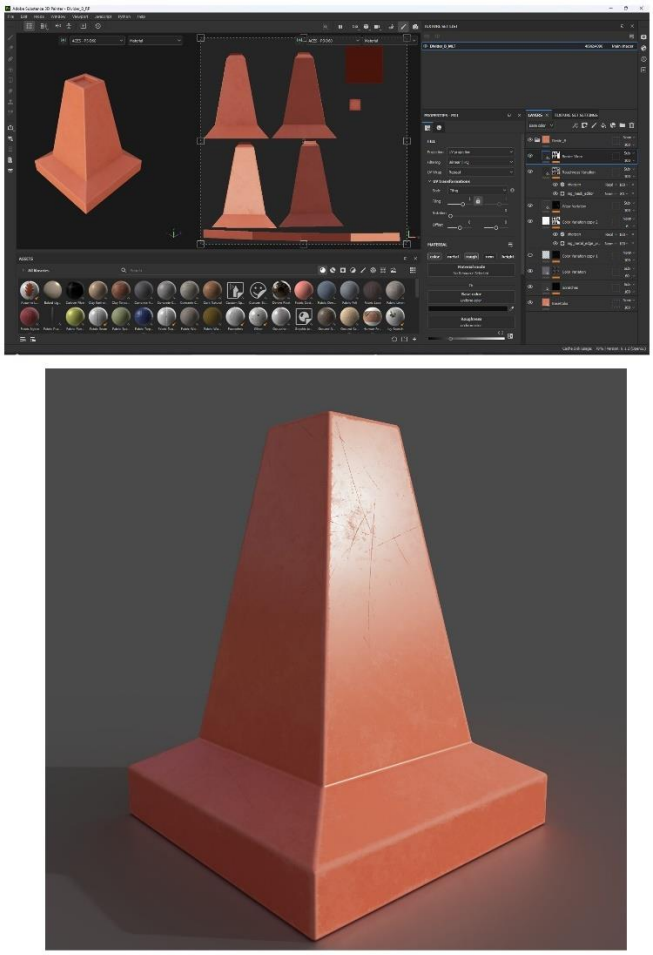


Figure 5.30: Road Divider (B) in Substance Painter And Iray Render

is characteristic of plastic. Dirt layers at the base added to the real use of such dividers interacting with the environment. This somewhat clean and worn look of the divider made for a practical and believable prop in the scene.

5.3.11 Sky Lantern Packet

This packet of sky lanterns was textured with smooth plastic materials to have a glossy and reflective look. Some custom-made graphics and labels, drawn in Adobe

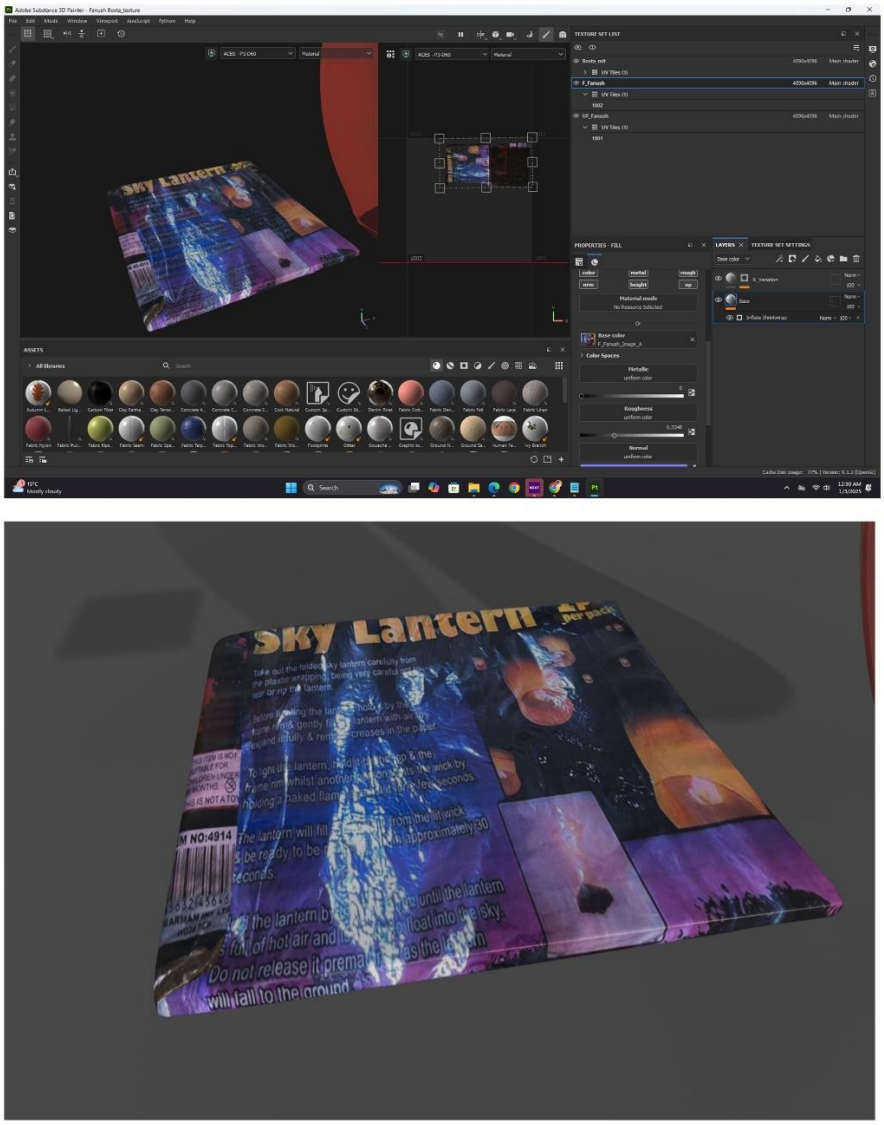


Figure 5.31: Sky Lantern Packet in Substance Painter And Iray Render

Illustrator, were mapped onto the surface to create details and branding. Subtle variations in roughness were added to provide a realistic interaction with light. The texturing methodology has made the packet appear light and good to look at, appealing to the overall aesthetic of the project.

5.3.12 Flying Lantern

Texture the flying lantern with delicate fabric material. Add some translucency using a shader-mild adjustments in the opacity map, introducing some light roughness. Minimal variations in color and texture have been instated in order to

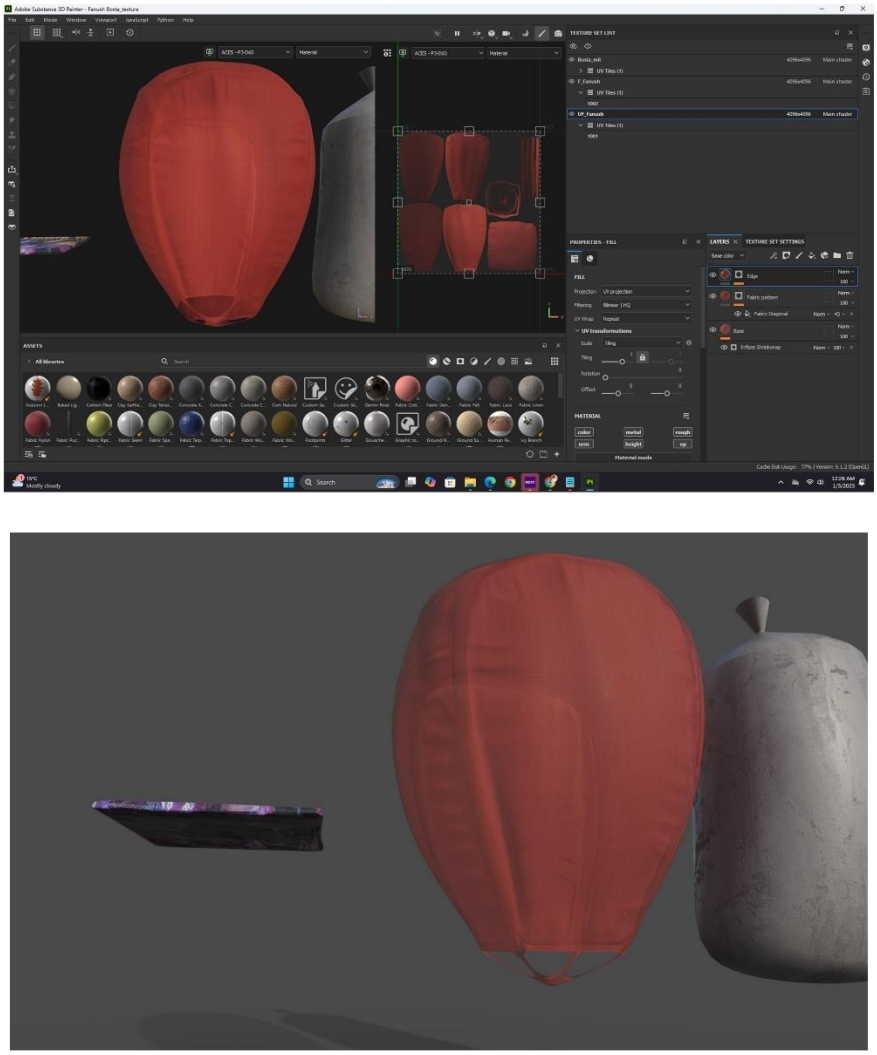


Figure 5.32: Flying Lantern in Substance Painter And Iray Render

maintain an organic quality. A fine amount of dirt and some minor burn marks, added subtly at the edges to denote its being used and being around fire, helped. The foregoing texturing did add reality to the lantern and married with an ethereal concept.

5.3.13 Sack

The texture of the sack was obtained by using rough plastic materials in order to simulate the feel of a woven fabric. Roughness maps and dirt details were applied

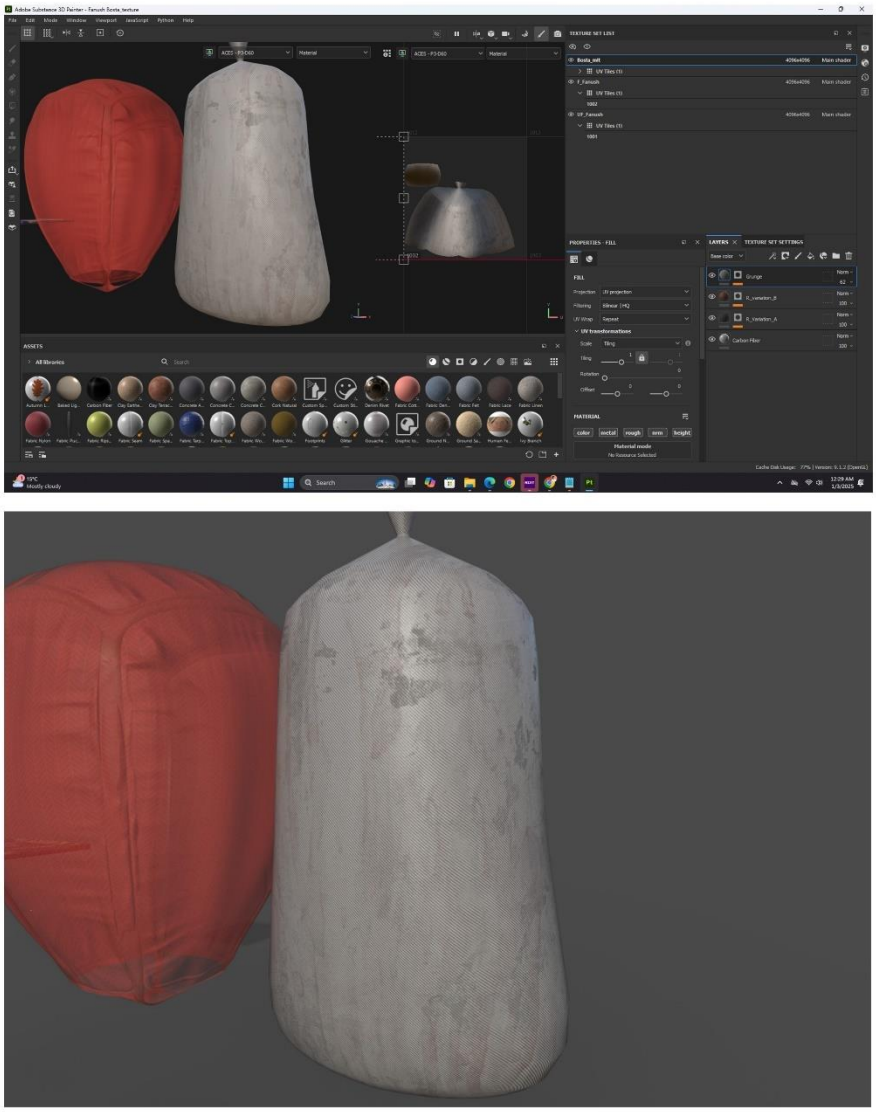


Figure 5.33: Sack in Substance Painter And Iray Render

for added realism. Stitching patterns were painted along seams for authenticity and depth. Subtle grunge and wear effects were included to make sure the sack looked used and functional within an environment. This careful texturing created a believable, grounded prop.

5.3.14 Ceiling Fan

It's textured with metallic shaders for the main body in conjunction with roughness maps to attain wear and smudges, while a slightly dirtied metal finish was

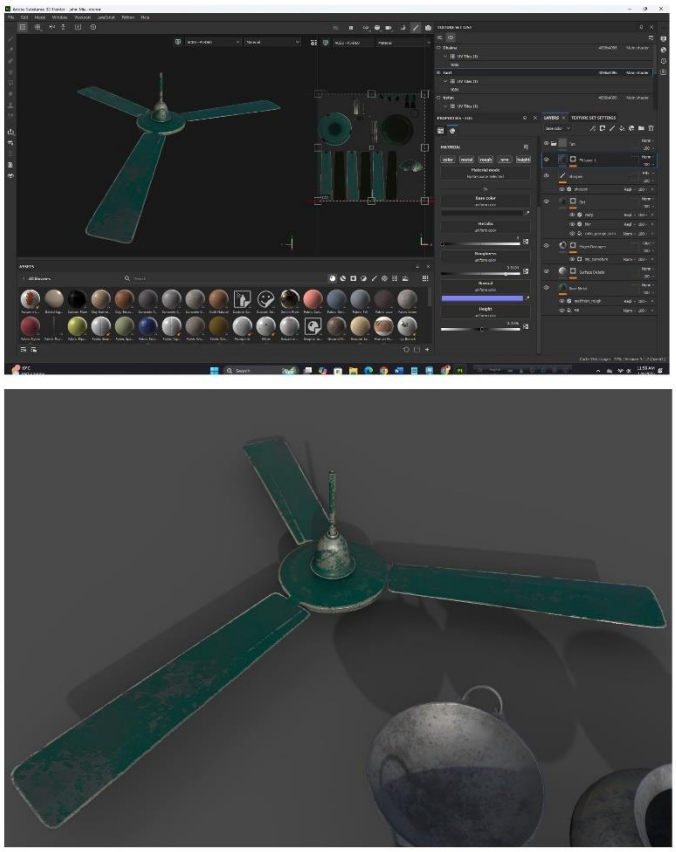


Figure 5.34: Ceiling Fan in Substance Painter And Iray Render

contrastingly given to the blades to show regular use. Subtle grime and edge highlights were added thanks to smart masks. This approach kept the ceiling fan realistic while being in tune with the overall aesthetic of the scene.

5.3.15 Plate, Glass, Spoon

Each kitchen utensil had its material properties textured. The spoon received a metallic shader that was polished but still had subtle fingerprints and smudges for realism. Further, the glass received a smooth steel texture with high reflectivity and slight imperfections in order to achieve realism on glass surfaces. On the plate,

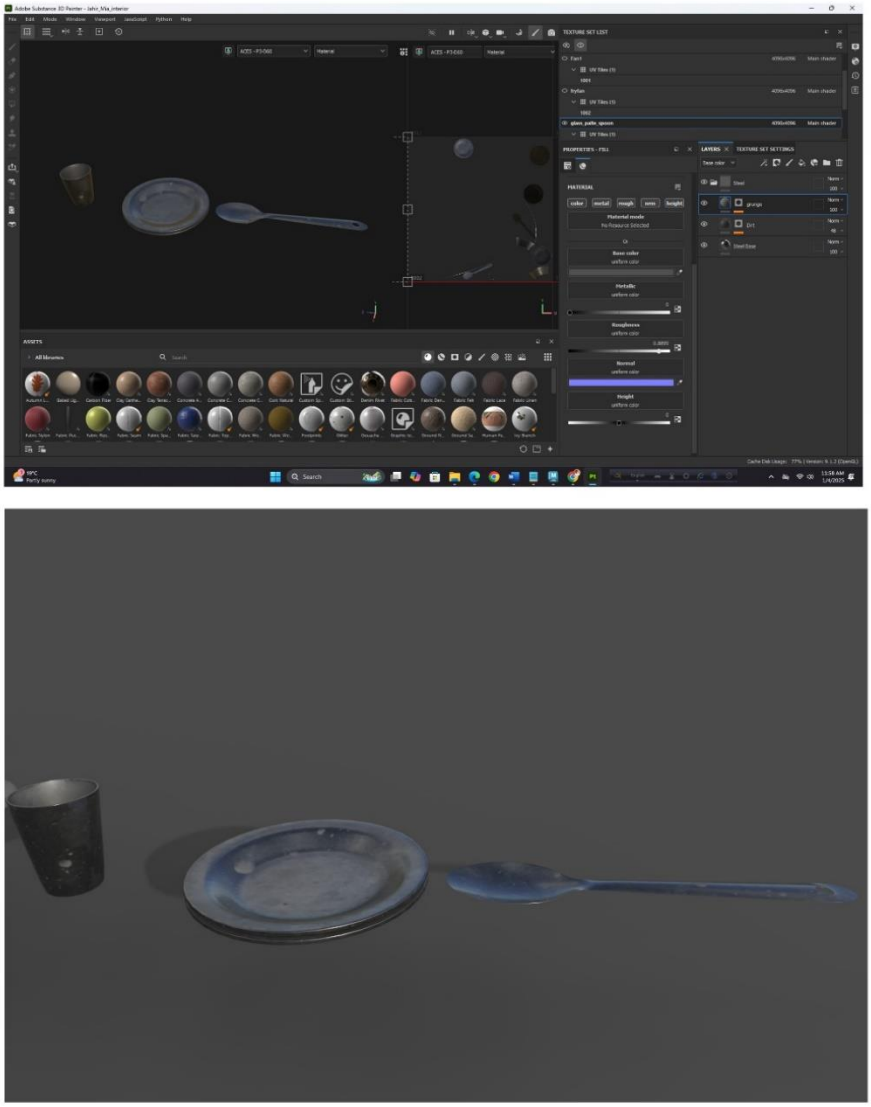


Figure 5.35: Plate Glass and Spoon in Substance Painter And Iray Render

highlights along the edges and subtle wear patterns were added, adding an everyday feel to it. This detailed texturing workflow would make the props feel cohesive and grounded within the environment.

5.3.16 Cooking Pots

For the cooking pots, a normal map with a metallic silver finish was applied. Grunge and dirt layers were also added around the rim and bottom to simulate use. All places where heat would have splattered some black charcoal-like dirt were

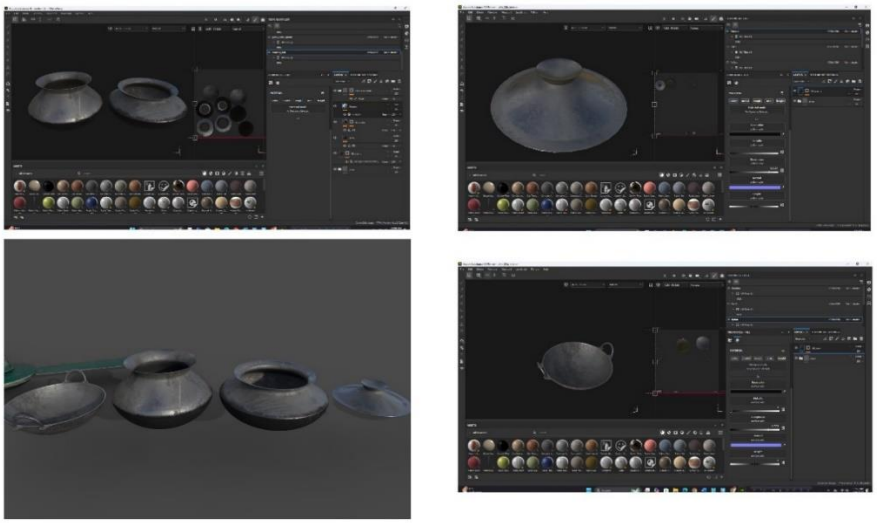


Figure 5.36: Cooking Pots in Substance Painter And Iray Render

added, allowing for much realism. Scratches and wear were carefully layered over the grime to achieve the look of being used yet serviceable. These details make the pots more realistic without detracting from their role within the scene.

5.3.17 Result and Notice Paper

A The notice paper and the result card were heavily detailed in their texture to make them look old, with worn paper serving the purpose of the scene. A subtle

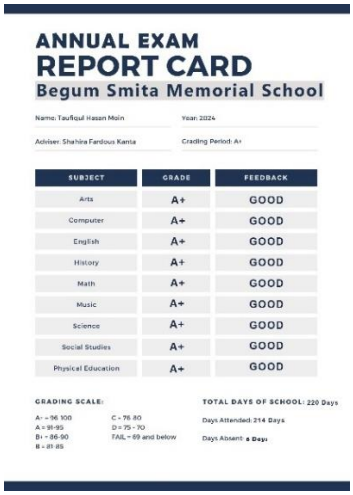


Figure 5.37: Result Card 2d Image

roughness map was added on both props to give fine textures and realistic fold marks, as if they were naturally worn and torn. The result card was to appear as

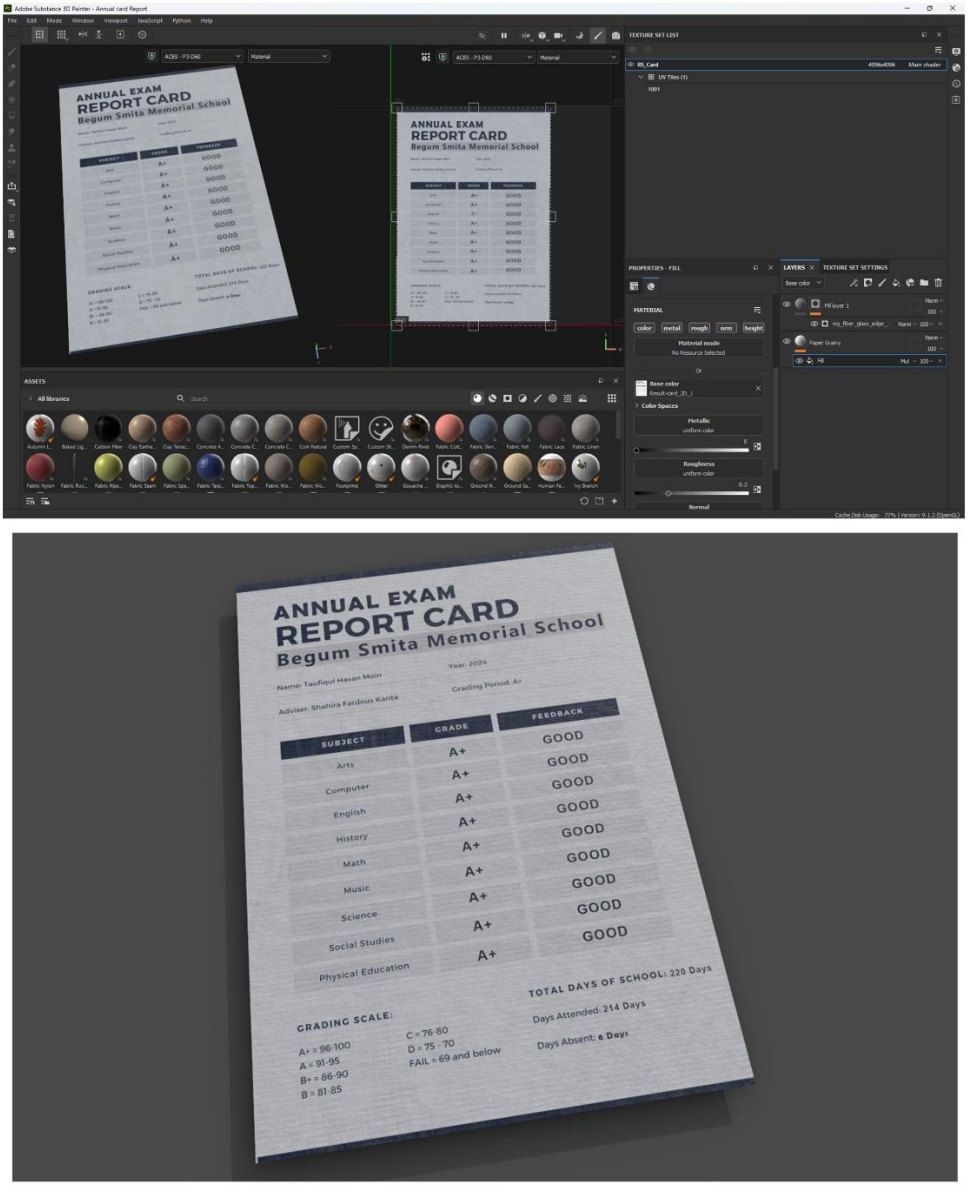
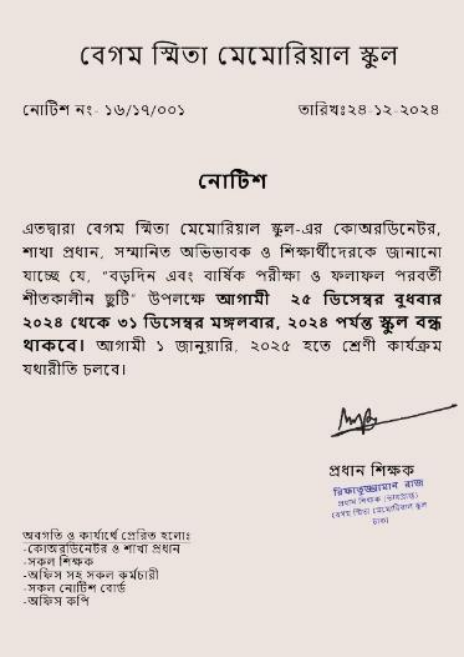


Figure 5.38: Result Card in Substance Painter And Iray Render

hard-textured paper with heavier gauge material and added edge highlights to give it more pronounced, long-lasting characteristics. Text and graphics of both props were designed in Photoshop to clearly relay information and context. Besides that, for the notice paper, in Photoshop, a stamp was designed and enhanced using the blur slope filter in Adobe Substance Painter to make it look more realistic, as if stamped with some smudge-like impression in the area stamped. These various



বেগম স্মিতা মেমোরিয়াল স্কুল

নোটিশ নং: ১৬/১৭/০০১ তারিখঃ২৪.১২.২০২৪

নোটিশ

এতদ্বারা বেগম স্মিতা মেমোরিয়াল স্কুল-এর কোঅরডিনেটর, শাখা প্রধান, সম্মানিত অভিভাবক ও শিক্ষার্থীদেরকে জানানো যাচ্ছে যে, "বড়দিন এবং বার্ষিক পরীক্ষা ও ফলাফল পরবর্তী শীতকালীন ছুটি" উপলক্ষে **আগামী ২৫ ডিসেম্বর বুধবার ২০২৪ থেকে ৩১ ডিসেম্বর মঙ্গলবার, ২০২৪ পর্যন্ত স্কুল বন্ধ থাকবে।** আগামী ১ জানুয়ারি, ২০২৫ হতে শ্রেণী কার্যক্রম যথারীতি চলবে।

প্রধান শিক্ষক

রিফাতুজ্জামান রাজ

অবগতি ও কার্যার্থে প্রেরিত হলোঃ
-কোঅরডিনেটর ও শাখা প্রধান
-সকল শিক্ষক
-অফিস সহ সকল কর্মচারী
-সকল নোটিশ বোর্ড
-অফিস কপি

Figure 5.39: Notice Text paper 2D Image

skills of 2D and 3D texturing on both props made them feel alive while still achieving a stylized feeling for the project. These final details come together with the environment in

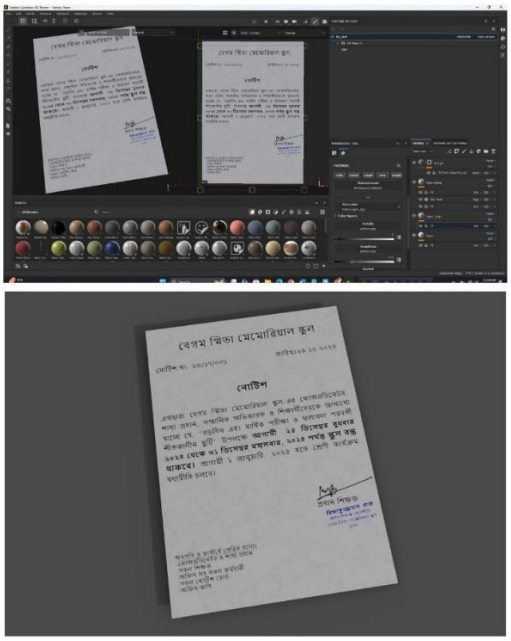


Figure 5.40: Result Card in Substance Painter And Iray Render

order to enhance visual storytelling and add layers of authenticity. These props added to the authenticity of the set while helping to anchor the narrative elements into the space.

Their design and textural decisions considered the overall art direction to provide visual cohesion and depth to the storytelling.

5.3.18 Modular Assets

The walls were roughly plastered, with cracks and stains; minor moss growth was seen in the corners. The color reflected colors of hue muted earthy tone and belonged to the poor and aged environment of Jahir Mia's quarter.

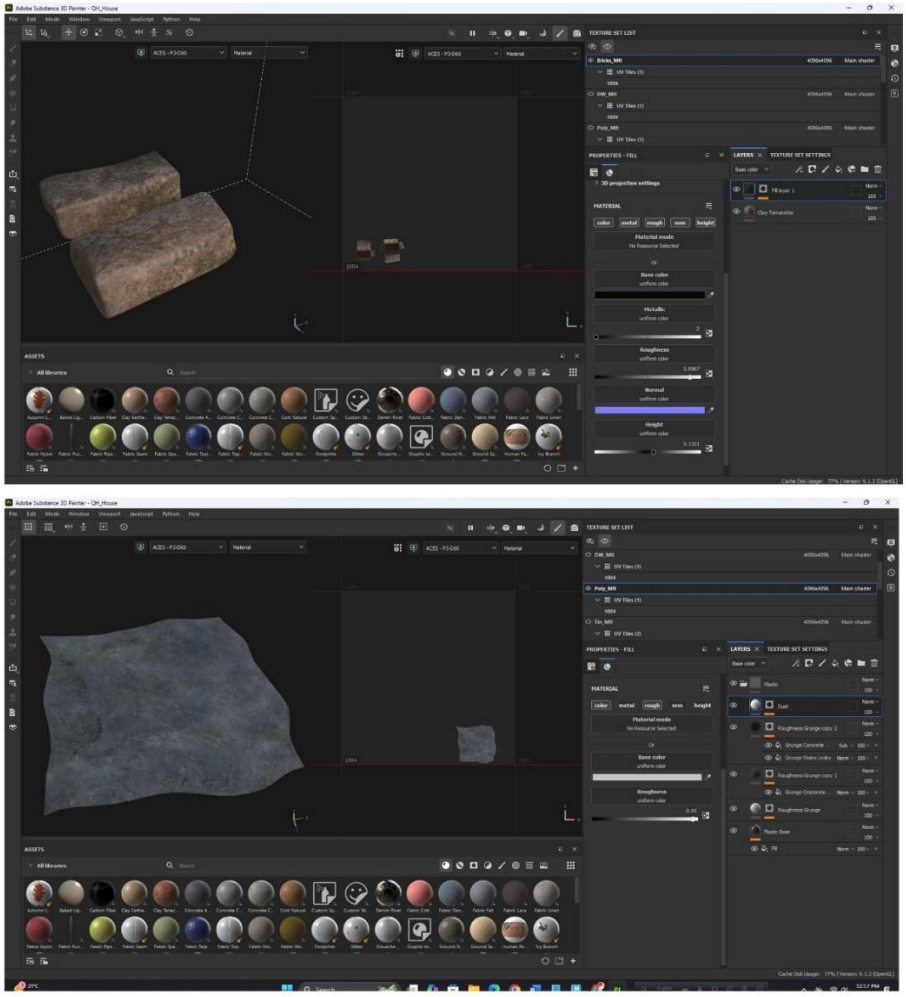


Figure 5.41: Brick and Polyethene in Substance Painter

The corrugated metal textures were painted with rust patches along the edges and water stains close to the overlaps of the sheets. Also, a layer of faded paint was added over it to provide a worn and uncared-for look to the roof.

The wooden planks were textured with weathered wood material, with highly visible grain and slight surface irregularities. Dirt and scratches were added to emphasize heavy usage and exposure to the elements.

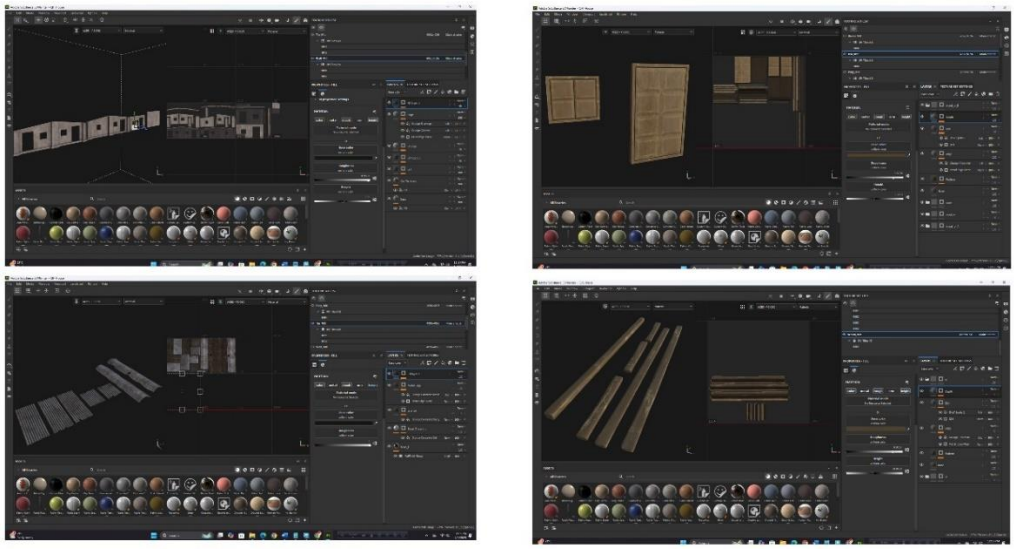


Figure 5.42: Modular Assets in Substance Painter

The texture for the doors and windows was done using old painted wood material. Heavy use and aging took the form of chipped paints, scratches, and dirt additions, especially around handles and edges, while slight and delicate reflections also

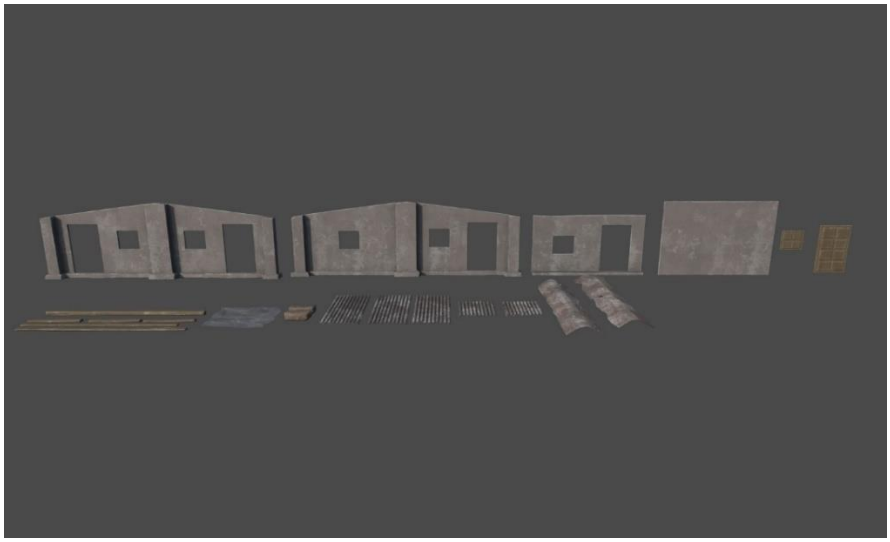


Figure 5.43: Iray Render of Modular Assets

featured on window glass to present a realistic scene. The texture of the bricks was made irregular to emphasize that they were handmade. Earthly red and brown tones were mixed,

and moss and dirt details were added in the crevices to give the environment an aged, rural look.

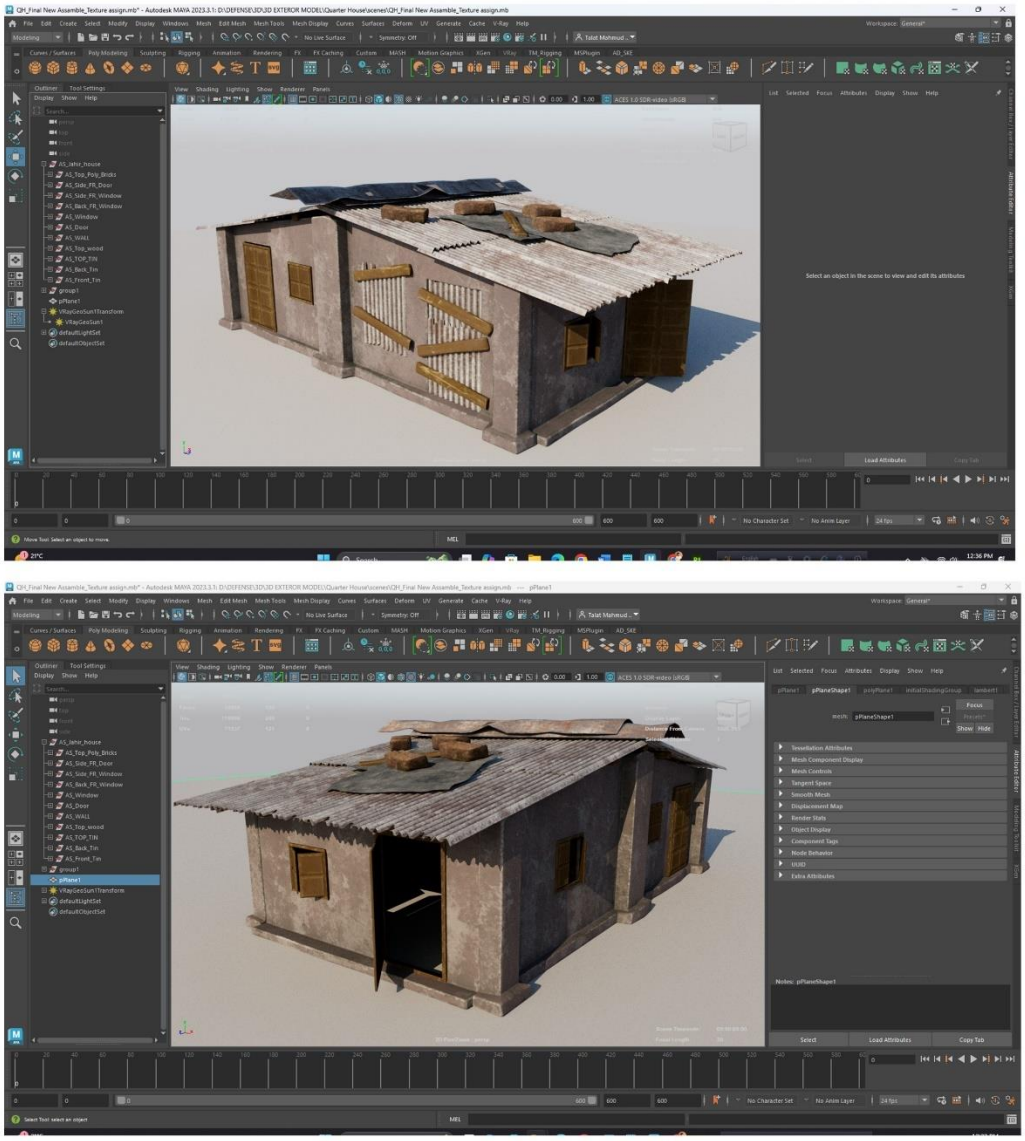


Figure 5.44: Preview Image of Textured and Assembled Modular Asset

Translucent plastic material for polyethylene with slight wrinkles and stretches was made. Dirt and smudges were added to show it is reused and worn. The finish was given a little glossy to make it as natural as it would appear in reality.

CHAPTER 6

Impact on Society and Environment

Dhowa, being an animated short film, is made to ignite discussions on socially, environmentally, and sustainability-wise important matters. This movie storyline embodies exactly that: empathy and compassion; it shows ethical treatment of animals, taking care of our surroundings. It tries to give social awareness through real-life struggles, emotional involvement, and inspiration for bringing about a social change by even small-scale actions. It favored digital workflows in production, reducing physical resources and waste. By leaning on cloud storage solutions such as Google Drive, Terabox, and OneDrive, it avoids the environmental cost of physical data storage and paper-based planning that characterizes other productions. Skimmed Best This was further facilitated by effective sharing methods, reusing lots of online material, hence reducing the carbon footprint. Sustainability in the management of the project came through using a website like Monedy.com for real-time collaboration and effective use of resources. With streamlined workflows integrated into cloud-based platforms, the team worked productively but in a sustainable manner. This approach has not only saved time but also ensured that the resources are not stretched much to produce quality output. Dhowa reflects the commitment of the team in the art of storytelling blended with societal and environmental values that allow an appreciation of sustainability in creative endeavors.

6.1 Impact on Society

The animated short film Dhowa has a strong social message and aims to project a social value through its storyline. It unravels the lives of underprivileged classes and highlights issues like sympathy, poverty, and friendship between humans and animals. By projecting characters such as Rickshaw Puller character and his wife character , the film appeals for the viewers to show empathy toward them and relate the struggles of these simple folk to the ills that plague society as a whole. Dhowa promotes one of the cores: empathy and understanding. The film reminds audiences subtly about the extension of life towards humans and animals and fosters coexistence with mutual respect. Participation by animals,

especially for symbolic purposes, signals a need for love and care on the part of all living creatures and encourages viewers to revisit their thinking on animal welfare. The story is also a call to action, for one to deeply reflect on social inequalities and what one's contribution towards their eradication might be. Dhowa blends emotional storytelling with meaningful visual representation to spur conversations on compassion, human rights, and the dignity of life. With its art direction and storyline, the film will create an indelible mark to contribute toward changing the world for a more empathetic society that truly inclusively cares.

6.2 Impact on Society

Dhowa, a short-animated film, broaches environmental awareness and sustainability very subtly through the storyline and the visuals involved. While the core subject matter remains on societal issues, the environmental context in which the film places them creates depth in the message. Representation by Rickshaw Puller of impoverished surroundings and use of limited resources in his daily life mirror the struggle of communities to live in harmony with their surroundings despite the cruellest realities. Resourcefulness is reflected not only in how the film has been produced but also within the narrative. For example, the use of modular 3D assets, stylized designs, and reusable elements reflects an eco-conscious approach to storytelling. These decisions underline the reduction of waste and optimization of resources, even in the virtual world. In addition, the symbolic use of animals-such as the crow-showcases more and more the fact that all life is interlinked with the environment. This relationship will serve to make viewers reflect upon the impact of human action upon ecosystems and the preservation of biodiversity. Dhowa cultivates a sense of responsibility toward nature, encouraging viewers toward better life practices that are in tune with the natural environment. Not precisely an environmental film, Dhowa weaves in an awareness of the environment with its visual and thematic layering. This creates a reminder that our acts, big or small, are going to leave their footprints on Earth for centuries to come, and it all begins with awareness and a bit of intention to ensure sustainability. The film tells through arts in filmmaking the ways of taking care of the environment and how it continues into the future generation.

6.3 Ethical Aspects

Creation and narrative in Dhowa address a number of ethical aspects that are integral in its storytelling and production process. The film is imbued with empathy, responsibility, and awareness in both portraying the challenges within society and in its approach toward content creation. The portrayal of Rickshaw Puller and his family in the film underlines ethical responsibility by pointing toward the recognition of hardship and assays on the part of underprivileged communities. The story reflects moral obligation to the humane treatment of all creatures, including animals. The inclusion of the crow as a symbolic character points out the importance of living with and respect for life. Ethically, this would make the audience reflect on their actions and question what the result would be from their actions to others, be it human or non-human. Dhowa had also followed ethical considerations on production through responsible sourcing and appropriate credit of free and stock assets. The approach had maintained the integrity of the project as well as showed respect from the team towards intellectual property rights, which is a collaborated characteristic within the creative industry. The other production technique which meets this ethical consideration is that of minimizing and reusing of waste; in that manner, optimization of the assets has been able to cut down on production wastage and enhance efficiency. Overall, ethical considerations in the film extend to production and presentation. Dhowa stands to remind one of ethical practices in storytelling as in real life by addressing issues of social justice, environmental respect, and responsible content creation. It inspires audiences to act with integrity and compassion in their interactions with others and the world around them. Through this, the film highlights the power of storytelling as a tool for advocating social and ethical change. It serves as a call to action, encouraging individuals to rethink their responsibilities towards others and the planet. By prioritizing these ethical considerations, Dhowa not only tells a compelling story but also fosters a culture of awareness, respect, and compassion. The narrative reinforces the importance of taking responsibility for one's actions and the impact they have on the world, urging audiences to adopt a more conscientious approach to life.

CHAPTER 7

Conclusion and Future Scope

Dhowa has been a great experience involving art, technology, and storytelling in the service of a socially relevant message. It again showed our growth as a team of multimedia learners, the power of collaboration, and the sparks of creativity. From pre-production to the final render, every step has contributed to our growth-be it art direction, cohesive visual elements, or the use of advanced tools for the first time like Unreal Engine, Autodesk Maya, and Substance Painter. Technical problems and a tight schedule could have occurred, but eventually, those challenges served as great learning curves that helped us grow. Dhowa has been a great stepping stone into new projects. Going ahead, this opportunity will be perfect for my technical skills in 3D modeling, texturing, and animation. The sharing of ideas with all members, working, and problem-solving developed the contribution of each individual and trained us, in fact, for a higher challenge that might come ahead in creative efforts. Below stands a testimony to our potential and our further growth into the places we feel will benefit us in creating animations.

7.1 Discussion and Conclusion

Creating this animated short film, Dhowa, has been quite a tedious but rewarding experience. This was an opportunity for our group to change a meaningful story into a visual medium, appropriately mixing art and technology with storytelling for conveying a message of social awareness. Each stage in this animation process, right from pre-production to the final rendering, showed the growth of us as learners in the multimedia field, demonstrating the power of collaboration and creativity. Art direction was leading this project in such a way that every visual element supported the narrative and resonated with the audience. Our attention to using a cohesive color palette, carefully designed props, and realistic textures brought the world of Dhowa into existence. Furthermore, this mix of advanced tools such as Unreal Engine, Autodesk Maya, and Substance Painter helped us get professional results with limited resources. The journey to the final product was quite fraught with deadline and technical challenges, but they became learning opportunities. By

using free downloadable assets and cloud-based tools, it streamlined our workflow to allow concentration on storytelling and quality. Let me end by saying that Dhowa stands out as a testimony to the potential of animation as a medium for raising awareness about important social issues. This was supposed to be the culmination of all our creativity put together, a team leaving indelible marks on the growth in both sets of skills and understanding in Animation Production. Indeed, this project served its purpose, leaving room for future ground that shall be covered in animation, and we hope to proceed and explore meaningful stories in most appropriate manners, refining our crafts piece by piece.

7.2 Scope for Further Developments

The project Dhowa has been an important milestone in my path of learning animation and 3D production. While trying to deliver each given task in the best possible way, incorporating the objectives of the whole project, I am fully aware that my work could hardly fit the professional industry standards. The thought in itself has made me identify those areas where I can develop and get better. Besides all the main goals in development, I consider those most substantial connected with technical skills like developing models of 3D model with texturing and further animations. The more advanced practice the deeper learning is, for this reason, I believe such a way will contribute more to quality, detailed ability, and creativity. Being taught about workflows that are appropriate and going along with industrial norms will allow me to handle an assignment with pleasure and also lead to confidently overcoming any difficulties in further work. The journey to Dhowa helped me understand that collaboration with team members on the journey can help one acquire knowledge and improvement in everything. Idea sharing, receiving criticism, problem-solving collectively; all are just experience that I will take for the future projects, including developing collaborative working abilities by enhancing individual contribution. This was in Dhowa, going into the future; with greater skill, refine prop details, texturing, animations-anything that can really make it great, to show a peek of progression made on it. All these experience and happenings around seem to have stiffened me to go further on to learn, trying newer ones and trying to do better at every project.

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