

UNIVERSITY COLLEGE OF ENGINEERING NAGERCOIL

(ANNA UNIVERSITY CONSTITUENT COLLEGE)

KONAM, NAGERCOIL - 629 004



PROJECT REPORT

NM1034 – GAME DEVELOPMENT

Submitted By

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Year / Semester : IV / VII

Department : B.Tech – Information Technology

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Certified that, this is the bonafide record of work done by **Aswin R C** of **VII Semester** in **Information Technology** of this college, in the **NM1034 – GAME DEVELOPMENT** during academic year **2024 – 2025** in partial fulfilment of the requirements of the **B.Tech Degree** course of the Anna University Chennai.

Staff-in-charge

Head of the Department

This record is submitted for the University Practical Examination held on.....

Internal Examiner

External Examiner

2D Game Design - Construct



Overall Scene

The scene showcases a vibrant and cheerful 2D platformer game environment. The background consists of a bright blue sky, with a few fluffy white clouds scattered around. In the distance, you can see green rolling hills adding depth to the scene. The ground is rocky and rugged, with patches of grass growing on top, giving it a natural feel.

Game Elements

- **Score and Health Display:** In the top right corner, there is a score display represented by coins, currently showing "00," and three heart icons indicating the player's lives.
- **Platforms:** The ground has multiple stone and grass-covered platforms that the player can jump across. The platforms are at different heights, creating opportunities for exploration and challenges in jumping.
- **Collectibles:** A golden coin is visible on a platform, suggesting a reward for players who reach it.

- **Character:** The main character is a playful, animated cat with a cheerful expression, standing next to a small flag with their face on it. This character seems ready for an adventure, adding charm to the game.
- **Enemies:** A small black blob-like enemy is present on one of the platforms, implying obstacles the player must avoid or defeat.

Possible Game Mechanics

- **Jumping and Platforming:** The character will likely need to jump between platforms, avoid falling, and navigate obstacles to progress.
- **Collecting Coins:** Players can increase their score by collecting coins scattered around the level.
- **Avoiding Enemies:** The character may need to dodge or defeat enemies to avoid losing health.

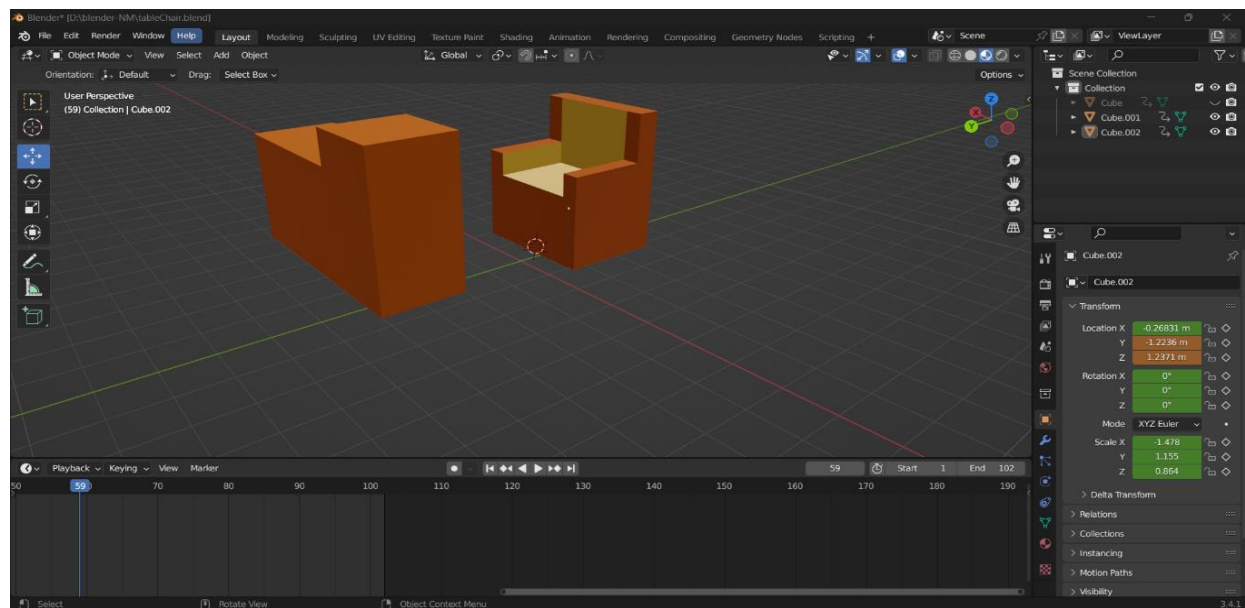
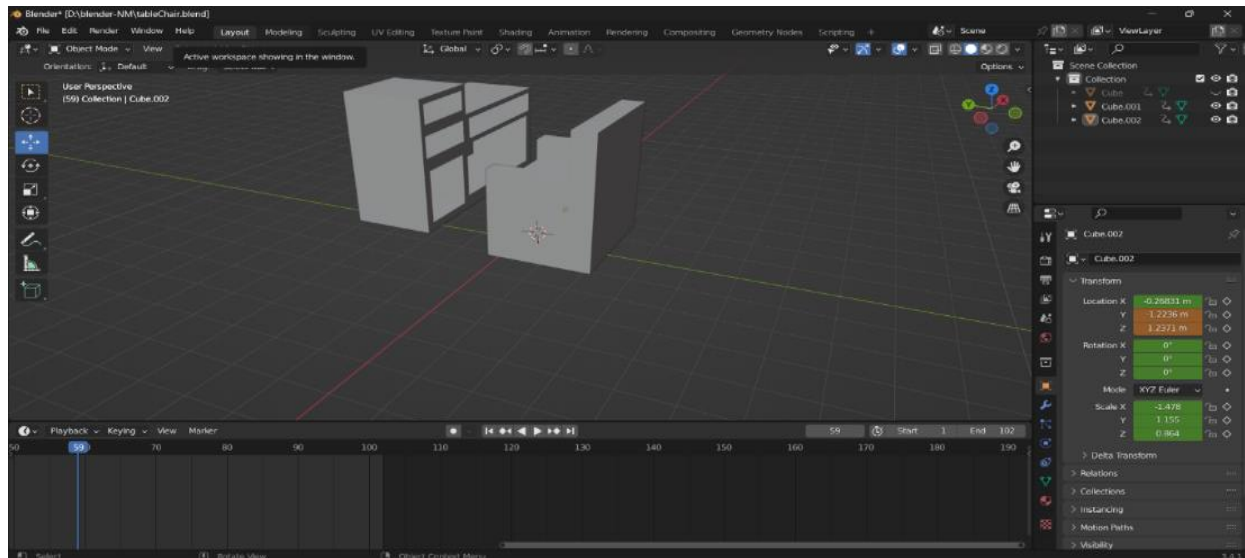
Additional Considerations

- **Camera Movement:** The camera likely follows the character horizontally, keeping them centered on the screen.
- **Level Progression:** The flag next to the character might mark checkpoints or level completion.
- **Obstacle and Enemy Variety:** Future levels could introduce different types of obstacles and enemies to challenge the player further.

Overall Impression

This game environment is designed to be visually engaging and accessible. The bright colors and friendly character make it inviting for players, while the varied platform heights and enemy placement hint at a well-balanced difficulty level for an enjoyable platformer experience.

Blender 3D



Overall Scene

The scene represents a minimalist setup that appears to feature basic furniture items, potentially part of a larger room setup. The models include two distinct objects that resemble a chair and a table in simple geometric form. The objects are composed of basic cubes, modified to add depth and shape to represent the chair's seat and the table's solid structure.

Objects and Elements

Chair:

- The chair has a rectangular shape with a cutout seat, representing a backrest and armrests.
- It is composed of simple shapes (cubes) and currently has two materials/colors. The backrest and armrests have a darker brown color, while the seat area has a lighter color.
- There is no texture detail, which keeps the look clean and simple.

Table:

- The table or cube-like structure beside the chair is a solid block without any intricate detailing.
- This object is the same color as the chair's darker section and may represent a side table or another simple furniture item.

Lighting and Materials

Lighting:

- There appears to be no custom lighting in the scene, and objects are visible due to the default viewport lighting in Blender.

Materials:

- Two colors are used: a dark brown for the main structures (chair and table) and a lighter beige tone for the chair seat.
- There is no texture mapping or advanced material setup; the surfaces are flat-colored.

Possible Use Cases

This setup could be used for:

- **Furniture Visualization:** A basic design for a chair and table could be further developed or used in a low-poly scene.
- **Simple Interior:** This scene could be a starting point for creating a minimalistic interior setup in Blender.
- **Prototype Render:** This can serve as a basic prototype for testing colors and arrangement.

Additional Considerations

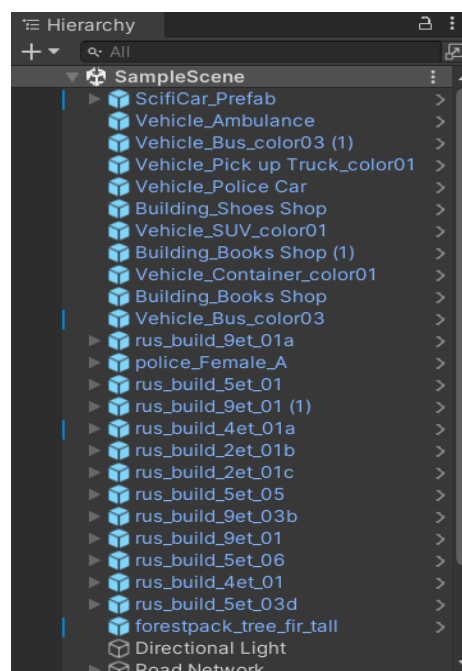
- **Scale and Dimensions:** If this setup represents real furniture, confirming the dimensions and scale within Blender would help create a more realistic layout.
- **Detail Enhancement:** Adding finer details, such as textures or more refined shapes, could enhance realism if desired.
- **Additional Objects:** Including more elements like flooring, walls, and decor could make this scene more complete.
- **Lighting Setup:** Adding light sources could improve the scene's realism, especially if this will be used for visualization or render purposes.

Overall Impression

This is a simple yet clean Blender scene featuring basic furniture shapes. With additional details, it could be developed into a more realistic or stylistic model scene. This setup is suitable for prototyping, learning, or minimalistic 3D visualization projects.

Unity 3D

Hierarchy Window:



Scene Window

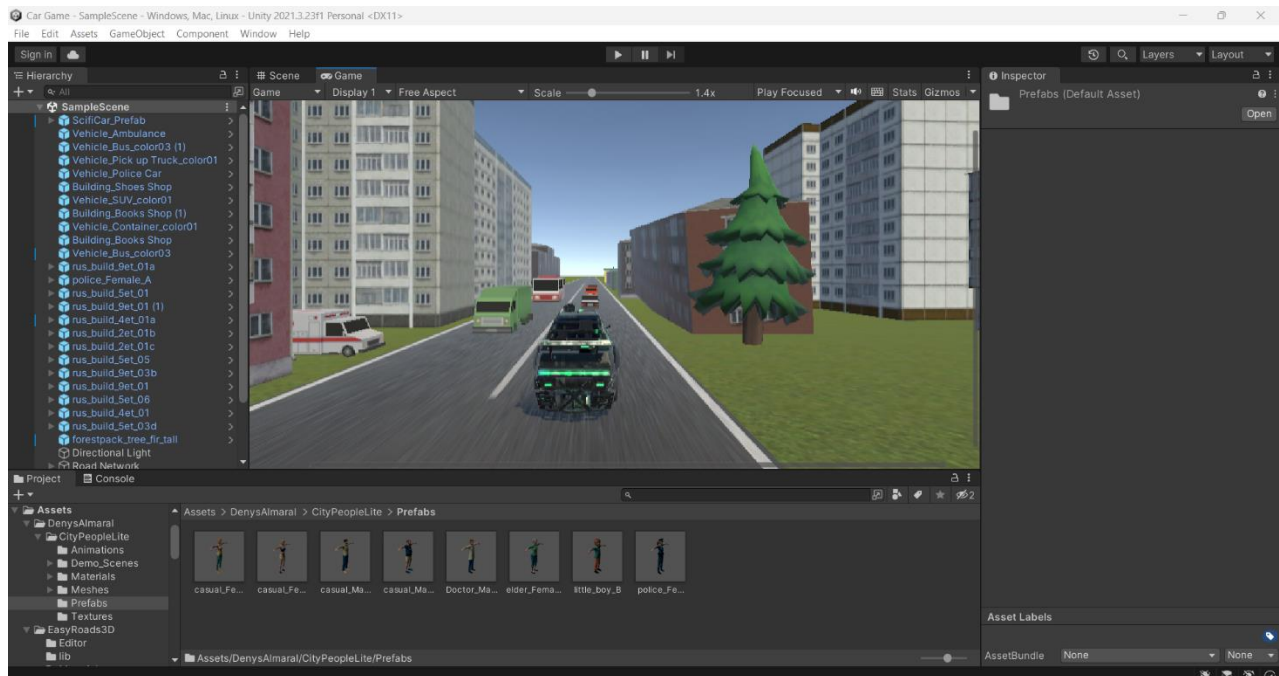


Game 3D Environment





Main Camera



Overall Scene

The scene showcases a low-poly urban environment designed in Unity. The main street has various vehicles, including an ambulance, buses, and a police car, driving through a cityscape surrounded by buildings, trees, and a road network. The perspective suggests a third-person driving experience.

Objects and Elements

Buildings: Numerous tall structures line both sides of the road, resembling residential or commercial city blocks.

Vehicles: Multiple types are included, such as an ambulance, bus, pickup truck, police car, and a futuristic "ScifiCar." Each vehicle has a distinct color and style, adding variety to the urban scene.

Nature: A large fir tree stands out on the roadside, adding a natural element amidst the cityscape.

Characters: The asset folder includes models like casual pedestrians, a doctor, a policeman, and a boy, though they're not placed in the visible scene.

Possible Game Mechanics

Based on the elements present, this scene could be used for various game mechanics, such as:

Driving Simulation: The primary game mechanic could involve vehicle control, where the player navigates through the city, potentially avoiding obstacles or following a route.

Traffic Interaction: Adding dynamic traffic elements, such as moving vehicles and AI pedestrians, could create an immersive urban driving experience.

Objectives and Challenges: The player might complete objectives like reaching destinations, following traffic rules, or responding to emergencies (if playing as the ambulance or police car).

Additional Considerations

Camera: The current third-person view is ideal for driving mechanics, but alternative perspectives could enhance different gameplay experiences.

Lighting: A directional light provides even illumination, though time-of-day settings (morning, afternoon, night) could add atmosphere.

Sound Effects: Ambient city sounds, vehicle noises, and character interactions would enhance realism.

This environment is well-suited for an urban driving game where players experience navigating through a stylized, low-poly city.

Overall Impression

This Unity scene presents a clean and well-structured low-poly city environment suitable for a driving or city simulation game. The combination of varied vehicles, buildings, and a straightforward road layout creates an engaging urban setting. The assets, including character models, provide opportunities for further interaction, such as pedestrian or AI vehicle movement. The scene's visual style is consistent and accessible, which would appeal to players looking for a simple, casual experience. Adding dynamic elements like traffic or objectives could enhance gameplay depth.

Game Window



C#:

using System.Collections;
using System.Collections.Generic;
using UnityEngine;

```
public class OpponentCar : MonoBehaviour
{
    [Header("Car Engine")]
    public float movingSpeed;
```

```
public float turningSpeed = 50f;
public float breakSpeed = 12f;
```

```
[Header("Destination Var")]
public Vector3 destination;
public bool destinationReached;
```

```
private void Update()
{
    Drive();
}
```

```
public void Drive()
{
    if (transform.position != destination && !destinationReached)
    {
        Vector3 destinationDirection = destination - transform.position;
        destinationDirection.y = 0;
        float destinationDistance = destinationDirection.magnitude;

        if (destinationDistance >= breakSpeed)
        {
            // Steering
            destinationReached = false;
            Quaternion targetRotation = Quaternion.LookRotation(destinationDirection);

            transform.rotation = Quaternion.RotateTowards(transform.rotation, targetRotation, turningSpeed *
                Time.deltaTime);

            // Move Vehicle
            transform.Translate(Vector3.forward * movingSpeed * Time.deltaTime);
        }
        else
        {
            // Destination reached
            destinationReached = true;
        }
    }
}
```

```
}  
  
public void LocateDestination(Vector3 destination)  
{  
    this.destination = destination;  
    destinationReached = false;  
}  
}
```

Conclusion:

This Unity scene provides a solid foundation for a Traffic City Simulator Game, offering a low-poly urban environment with diverse vehicles, buildings, and natural elements. The setting is ideal for simulating city traffic dynamics, allowing players to navigate through a bustling cityscape. With features like varied vehicles, pedestrian models, and a structured road network, the scene supports engaging gameplay mechanics such as traffic navigation, obstacle avoidance, and mission-based objectives.

The clean and consistent visual style ensures an enjoyable experience, while potential enhancements like dynamic traffic, AI pedestrians, time-of-day lighting, and ambient sound effects can elevate the simulation's realism and immersion. This environment successfully sets the stage for a fun and interactive traffic city simulation.