UNIVERSITY OF INFORMATION TECHNOLOGY AND SCIENCES

Project Proposal

COURSE TITLE – Computer Graphics and Multimedia Lab

COURSE CODE – CSE 358

Submitted To

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Project Title: Urban Life: Day & Night Simulation

1. Introduction

Urban environments are dynamic, with interactions between buildings, vehicles, pedestrians, and natural elements. This project simulates a small urban area with both traditional houses and modern buildings, featuring moving cars, pedestrians, birds, and clouds. The simulation also includes a **day and night mode** to enhance visual realism.

2. Objectives

- Visualize a 2D urban scene with buildings, roads, trees, and pedestrians.
- Animate dynamic elements: cars on roads, pedestrians crossing, birds flying, and clouds moving.
- Implement day/night mode toggle affecting sky color and sun/moon appearance.
- Provide a simple interactive simulation for educational purposes.

3. Scope

- Static urban structures: houses, modern buildings, trees, roads.
- Dynamic objects: cars, pedestrians, birds, clouds.
- Day/night visualization.
- Keyboard-controlled interactivity for day/night toggle.

4. Tools and Technologies

- **Programming Language:** C
- **Graphics Library:** OpenGL with GLUT
- **Platform:** Windows/Linux/Mac
- **Development Environment:** Code::Blocks, or similar

5. Methodology

- Initialize OpenGL and configure 2D orthographic projection.
- Draw static elements: houses (smaller roofs), modern buildings, trees, and roads.
- Animate cars, pedestrians, birds, and clouds with continuous position updates.
- Implement day/night toggle with keyboard input affecting sky and sun/moon.
- Use a timer function (glutTimerFunc) for smooth animation.

6. Expected Outcome

- A 2D animated urban scene showing interaction between moving cars, pedestrians, birds, and clouds.
- Day and night visual modes.
- Keyboard-controlled interaction for toggling between day and night.
- Educational demonstration of basic animation and urban life in OpenGL.

7. Conclusion

This project provides a **simple yet engaging urban simulation**, demonstrating 2D animation, interactivity, and environmental dynamics through day and night cycles.