



University of Science and Technology Chittagong (USTC)

Faculty of Science, Engineering & Technology
Department of Computer Science & Engineering

Lab Report

Course code : CSE 418

Course Title : Computer Graphics and Image Processing Lab

Project Name :

An Augmented Reality Image Tracking Application with
Interactive Dragon Model.

Team Name : Dynamos.

Submitted by :

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Batch : 38th

Dept. : CSE

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Objective

This project aims to develop an augmented reality (AR) application that uses image recognition to trigger the display of a 3D model in a real-world environment. The application will allow the user to interact with the 3D model through intuitive controls, providing an immersive AR experience. The project demonstrates the integration of computer graphics, image processing, and user interaction in AR.

Technologies and Tools

Unity: The primary development environment for creating the AR app.

AR Foundation: A cross-platform framework that facilitates AR development for both Android and iOS.

3D Model: A customizable 3D model that is triggered by the detection of a specific image in the real-world environment.

User Interaction: Methods for interacting with the AR model, such as rotating, moving, or resizing the model via touch controls.

Methodology

Set Up Unity Project: Initialize the Unity project and integrate the AR Foundation package for AR functionality.

Implement Image Tracking: Configure image recognition to detect a pre-defined image from the real world and trigger the 3D model when detected.

Integrate 3D Model: Import a 3D model into the project and program it to appear at the location of the detected image in the AR space.

User Interaction Controls: Implement touch-based controls to allow users to interact with the 3D model, adjusting its position, rotation, and size based on user input.

Test on Mobile Devices: Build and deploy the application on both Android and iOS platforms, testing the functionality of the image tracking and model interaction.

Conclusion

The project achieved its goal of developing an Augmented Reality image tracking application that features an interactive 3D model. By leveraging image tracking, the app can accurately recognize a real-world image and overlay digital content in real time. The integration of interactivity enhances user engagement, showcasing the potential of AR technology for educational, entertainment, and commercial use. This work lays a strong foundation for future improvements and more complex AR experiences.