5. AirControlX (C++)

Description:

A comprehensive air traffic control simulation system that models aircraft movements, runway assignments, airspace violations, and payment processing. It uses multithreading and SFML for visualization. This project was developed during my 4th semester.

Key Features:

- Multi-threaded aircraft simulation

- Runway management system

- Airspace Violation Notices (AVNs) with fine processing

- Priority handling for emergency aircraft

- SFML-based radar visualization

- Payment processing system

Technical Highlights:

- POSIX threads for concurrent operations

- Pipe-based inter-process communication

- Priority queues for flight scheduling

- Object-oriented design with inheritance

- Real-time violation detection

- SFML visualization

Dependencies:

- SFML

- POSIX threads

- C++17