

Abstract

This project aims to solve a critical limitation in Unmanned Aerial Vehicle (UAV) technology that requires drones to fly at higher altitudes to avoid collisions with objects. This constraint prevents UAVs from capturing detailed images close to buildings or other structures, significantly impacting the quality of 3D models and the effectiveness of obstacle avoidance systems.

This research focuses on developing advanced autonomous flight planning techniques that enable UAVs to navigate closer to structures while avoiding obstacles. By refining UAV operational capabilities and integrating sophisticated pathfinding methods, the goal is to enhance the accuracy and detail of 3D modeling. This work aims to create a system that supports dynamic altitude adjustments, allowing UAVs to maintain safe distances from obstacles while capturing high-resolution images.