ABSTRACT

Video transmission on flood-monitoring drones previously relied on omnidirectional antennas, which led to reduced quality at longer distances. This study designs a transmission system using a patch directional antenna to improve video stability and sharpness. Evaluation was conducted by comparing the performance of two types of antennas based on bitrate, latency, and image sharpness using the Half Flux Radius (HFR) method. Test results showed an increase in bitrate of up to 633%, a reduction in latency of up to 87.7%, and lower HFR values when using the directional antenna. The system effectively improves the accuracy and efficiency of real-time video transmission in drone-based monitoring.

Keywords: video fidelity, drone, directional antenna, latency, bitrate, HFR