

ABSTRACT

Environmental monitoring systems typically use CCTV cameras. A common challenge is that these devices are often targeted for theft. This study developed a drone-based flood monitoring system as an alternative to CCTV camera-based systems, which are vulnerable to theft. This system requires data communication support between the drone and the flood monitoring application. This real-time data communication enables the transmission of up-to-date information about the status and environmental data to the control system. The Real-Time Messaging Protocol (RTMP) is used for this communication. RTMP has low latency, making it suitable for streaming video transmission. The video is sent to the control device for processing. This study uses the RTMP, which is based on the TCP/IP architecture. RTMP is known for its extremely low latency, making it an ideal choice for transmitting real-time video data. This allows the video stream from the drone to the control center to run smoothly, even under suboptimal network conditions. RTMP is also compatible with various software platforms, such as OBS Studio and NGINX-RTMP, which supports comprehensive system integration. The video captured by the drone's camera is transmitted via RTMP and received by the main processing device at the control center. Once received, the video can be analyzed by an operator or an AI-based automatic detection system. This setup makes the flood monitoring system more responsive, smarter, and more adaptive to complex field conditions.

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