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Forest Farm Fire Drone Monitoring System Based on Deep Learning and Unmanned Aerial Vehicle Imagery

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摘要	<p>Forest fires represent one of the main problems threatening forest sustainability. Therefore, an early prevention system of forest fire is urgently needed. To address the problem of forest farm fire monitoring, this paper proposes a forest fire monitoring system based on drones and deep learning. The proposed system aims to solve the shortcomings of traditional forest fire monitoring systems, such as blind spots, poor real-time performance, expensive operational costs, and large resource consumption. The image processing techniques are used to determine whether the frame returned by a drone contains fire. This process is accomplished in real time, and the resultant information is used to decide whether a rescue operation is needed. The proposed method has simple operations, high operating efficiency, and low operating cost. The experimental results indicate that the relative accuracy of the proposed algorithm is 81.97%. In addition, the proposed technique provides a digital ability to monitor forest fires in real time effectively. Thus, it can assist in avoiding fire-related disasters and can significantly reduce the labor and other costs of forest fire disaster prevention and suppression.</p>
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