Patent Search

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Abstract:

The invention discloses an advanced forest fire alert system capable of early fire detection and real-time geographic location tracking. The system integrates flame and sm sensors with a microcontroller-based processing unit to continuously monitor forest environments for fire-indicative conditions. Upon detection and verification of a fire o smoke event, a GPS module generates precise latitude and longitude coordinates corresponding to the incident location. A wireless communication module transmits aler messages containing event status and location data to remote monitoring platforms, mobile applications, or emergency authorities. Local alert mechanisms and optional controlled suppression units provide immediate on-site response. The system supports low-power operation and scalable deployment across large forest areas, enabling r response, reduced false alarms, and improved forest fire management compared to conventional monitoring methods.

Complete Specification

Description:FIELD OF THE INVENTION

[001] The present invention relates generally to the field of environmental monitoring, disaster-management systems, and emergency alert technologies, and more particularly to an Internet-of-Things (IoT) and embedded-microcontroller based forest fire detection and alert system. The invention specifically pertains to systems that integrate fire and smoke sensing, real-time Global Positioning System (GPS) location tracking, wireless communication, and automated local actuation mechanisms to enable early detection, precise geo-localization, and rapid notification of forest fire incidents. The invention further lies at the intersection of wireless sensor networks, re time geospatial tracking, cloud-connected alert platforms, and autonomous mitigation control, enabling location-accurate alerts and optional on-site response initiation f forest fire management and environmental protection.

BACKGROUND OF THE INVENTION

[002] Forest fires constitute one of the most destructive natural disasters, causing extensive loss of forest cover, wildlife habitats, ecological balance, and human life and property. Early detection and precise localization of forest fire incidents are critical to minimizing damage and enabling timely intervention by forest authorities and disas response agencies. Conventional forest fire monitoring methods primarily rely on manual patrols, watchtowers, satellite imagery, or delayed public reporting, all of which suffer from significant limitations in response time, accuracy, and reliability

View Application Status

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