Group: Open Group

Sub-theme: I&T for Nature (Yama)

Project Code: O-001372

Wildfire And Campsite Safety ALL-IN-ONE Monitoring Solution (内容只提供英文版)

User Pain Points

Monitoring tree tilting and detecting potential wildfires are crucial for ensuring camper safety at the campsites. Campers and site managers face dangers from trees that may tilt due to environmental factors like soil erosion, heavy rainfall, or inherent structural weaknesses. Additionally, delays in detecting wildfires could lead to catastrophic outcomes such as property damage, habitat loss, and loss of life which may cause potential hazards to the forest livelihood. Advanced technologies serve as pivotal early warning systems to mitigate these risks effectively, through real-time monitoring capabilities for tree stability and fire detection

Solution Benefits

The campsite features advanced real-time monitoring systems for detecting tree tilt and wildfires, promptly alerting campers and site managers. The system also detects campers who have collapsed due to forest fires or even unprecedented circumstances, greatly enhancing safety measures and ensuring quick emergency responses. This approach helps prevent accidents and fires, securing a safe and enjoyable camping experience. Continuous monitoring of tree stability and thermal variations allows campsite managers to make informed decisions about tree care and wildfire response. This proactive management improves safety and ensures the sustainable and responsible use of natural resources.

Technologies Applied

Integrating LeafIoT from PolyU with ThingX from CUHK offers a robust solution for smart forest management and campsite monitoring. LeafIoT sensors gather data on environmental conditions and tree health, which ThingX's AI processes for real-time analysis and predictive insights on fall detection, enhancing the detection of fire risks and unexpected falling objects. This synergy facilitates automated response systems that can initiate preventive measures and alert authorities automatically when hazards and injuries are detected. Additionally, this technology can engage the community by making complex environmental data accessible and understandable, fostering greater involvement in conservation efforts.

Target Users

User Profile / Persona:

The user is a campsite manager responsible for ensuring the safety and enjoyment of campers. They oversee multiple aspects of the campsite, including maintenance, environmental monitoring, and emergency response. The user aims to provide a safe, sustainable, and enjoyable experience for campers while promoting environmental stewardship. Later, the system will develop a mobile application so that hikers and campers can download and view the instant wildfire status. This benefits to frequently visit and camp at country parks, campgrounds, and other natural settings. Seek to be seen as responsible and conscientious members of the outdoor community.

Age Group: 3-80

Occupation: Mixed (for example, young professionals, families, outdoor enthusiasts)

User Scenario and Goals:

The campsite is located in a scenic area surrounded by forests and a lake. It features tent areas, fire pits, and picnic tables. Campers and hikers enjoy various activities such as hiking, camping, cooking over campfires, picnicking, landscape viewing from observation decks, and stargazing. The primary goals for the user are:

1. Ensuring camper safety by monitoring tree tilting and detecting potential wildfires.
2. Promoting a relaxing and enjoyable camping experience.
3. Encouraging environmental responsibility and sustainability.
4. Fostering community bonding and group activities.
5. Implementing advanced technologies for real-time monitoring and emergency response.