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Department of Electronics and Communication Engineering

HX8001 - PROFESSIONAL READINESS FOR INNOVATION, EMPLOYABILITY AND ENTREPRENEURSHIP

EARLY DETECTION OF FOREST FIRE

Domain of the Project :CLIMATE CHANGE
Batch ID : B12-6A2E
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Table of Contents

Objectives

- The main objectives of the climate change awareness campaign are To improve awareness and understanding of climate change amongst citizens

- To demonstrate that daily activities can collectively make a big difference and that each individual has a role to play in the fight against climate change.

- Climate change refers to long-term shifts in temperatures and weather patterns. These shifts may be natural, but since the 1800s, human activities have been the main driver of climate change.

Abstract

- Forest and urban fires have been and still are serious problem for many countries in the world. Currently, there are many different solutions to fight forest fires.

- These solutions mainly aim to mitigate the damage caused by the fires, using methods for their early detection. Here ,we discuss a new approach for fire detection and control, in which modern technologies are used.

- In particular, we propose a platform that uses Unmanned Aerial Vehicles which constantly patrol over potentially threatened by fire areas.

Introduction

- Nowadays, the techniques for fire detection in large forest areas are based on satellite images and forest guard posts. However, these methods are not suitable for local measurement of the relevant parameters involved in fire risk and, hence, in its early detection. For this purpose, distributed sensing systems as wireless sensor networks (WSN) can offer a suitable measurement resolution .A WSN consists of several sensing nodes which gather information from the surrounding environment and communicate with each other to send the measured data to a base station for further processing. The most important requirements to develop a WSN node are small form factor, to reduce the visual effect in the area where sensors are distributed

Literature Survey

TITLE	AUTHOR & YEAR	JOURNAL NAME	REMARKS
Forest fire	Kaufmann, R. K. & Ullman, B 2020		The prediction price is accurate till there is a massive and sudden change in the actual data, where it becomes challenging to predict the exact new price The proposed model is power fulandhighly suggested because investors can use it not only to initiate trades but also as an effective tool to judge various strategies relating to investments.

Literature Survey

TITLE	AUTHOR & YEAR	JOURNAL NAME	REMARKS
Climate Change	Ramakanta Mohanty & 2021		Reliability is the important factor in accessing the software quality. It is related withed fects and faults. If more faults are encountered, the reliability of software decreases. Therefore, Reliability is defined as the probability of a system or component to work properly for a particular period of time under certain conditions.

Literature Survey

TITLE	AUTHOR & YEAR	JOURNAL NAME	REMARKS
Spot to the Futures Price	Herbert, John & 2021		Futures prices are unbiased predictors of crude oil A random walk characterization of commodity prices is not a particularly good one. This result contrasts with those found for other asset prices, notably foreign exchange rates. However, this result may partly be an artifact of our forecasting sample which encompasses a period of rising prices.

Literature Survey

TITLE	AUTHOR & YEAR	JOURNAL NAME	REMARKS
Resue Price Movements	Coppola, A. & 2022		Tests cointegration for the petroleum futures basis series using rank test method. The nullhy pothesis of no cointegration for the basis is rejected at the 1ˢ level, which is supportive of the expectations hypothesis. This implies that there is no arbitrage opportunity on futures contracts over along period of time. Furthermore, we investigate that long-run nonlinear equilibrium relationship that exists within the petroleum spot and futures markets using non-parametric rank test proposed by Breitung

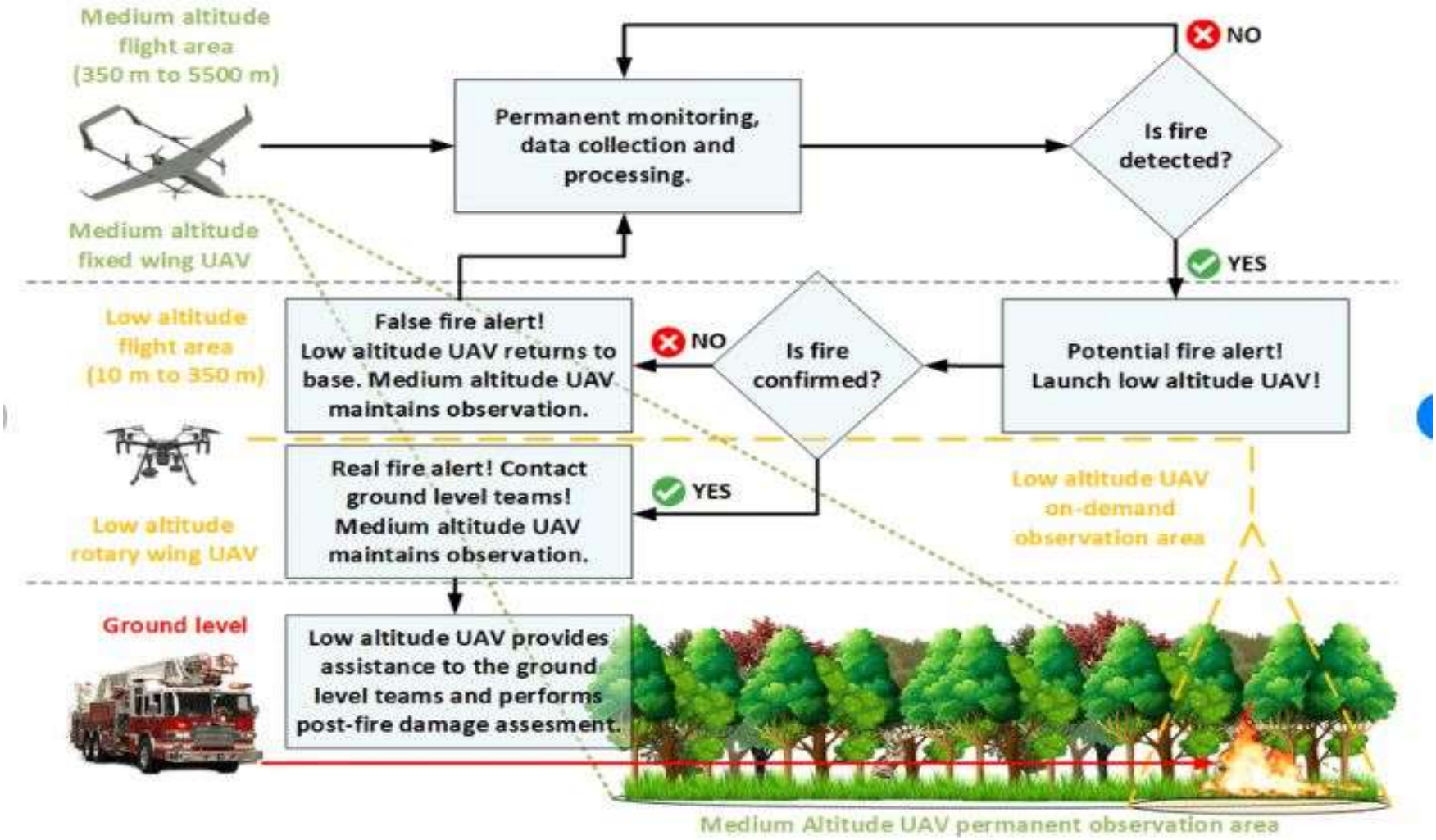
Literature Survey

TITLE	AUTHOR & YEAR	JOURNAL NAME	REMARKS
Artificial Intelligence	Lean Yu & 2022		an empirical mode decomposition (EMD) based neural network ensemble learning model is proposed for world crude oil spot price modeling and forecasting. For this purpose, the original crude oil spot price series were first decomposed into a finite and often small number of intrinsic mode functions (IMFs) are only used.

Problem Identification

- Optical/thermal cameras deployed on the observation towers together with the other sensors such as smoke, temperature, and humidity sensors might detect the hazards in the closed environment rather than in the open environment as these sensors need vicinity to the fire or smoke. The information obtained through these sensors is not appropriate. Distance covered by these methods could be limited, and to cover a large area, more sensors have to be deployed that might incur expenses.
- Through the deployment of UAV, large areas could be covered, and the images with high spatial and temporal resolutions could be captured properly. The operational cost is very low when compared with the other methods.

Block Diagram



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Questions & Discussion

THANK YOU