Ideation Phase

Literature Survey on the selected project & information gathering

Date	1/11/2022
Team Id	PNT2022TMID50335
Project Name	Emerging Methods for Early Detection of Forest Fire

Introduction:

Detection of forest fire and smoke in wildland areas is done through remote sensing-based methods such as satellites, high-resolution static cameras fixed on the ground, and unmanned aerial vehicles (UAVs).

Water is still the main way to extinguish forest fires. Therefore in large, contiguous and fire endangered forested areas it is necessary to have, or build and maintain, a fire fighting water supply system within suitable water courses or to create artificial reservoirs for water extraction.
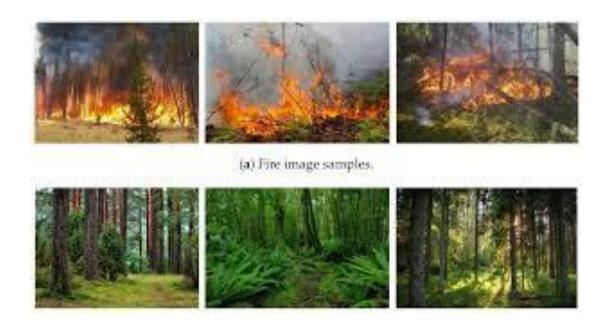
Detection of Forest fire using Remote Sensors:

Forest fire monitoring by remote sensing can be achieved through the use of polar- orbiting and geostationary satellites. The polar orbiting satellites that are used in fire detection and monitoring include MODIS, AVHRR, ASTER and Land sat. The application of these satellites is limited by their temporal resolutions.

AI used in monitoring Forest Fire:

A novel forest fire risk prediction algorithm, based on support vector machines, is presented. The algorithm depends on previous weather conditions in order to predict the fire hazard level of a day.

Artificial intelligence platforms scan thermal imagery from satellites beyond what the human eye can see to find temperature anomalies or hot spots just minutes after they spark. High tech companies use cloud-based artificial intelligence and machine learning models to analyze real-time open-access high-resolution earth observation satellite imagery to identify fires.

(a) Fire image samples.

Research Publications:

1. **An Intelligent System For Effective Forest Fire Detection Using Spatial Data**

K.Angayarkkani ,

Senior lecturer,

Department of Computer Applications,

D.G. Vaishnav College, Arumbakkam,

Chennai

.

Dr.N.Radhakrishnan,

Geocare Research Foundation,

#23/30,

First main Road,

Pammal,

Chennai - 600 075.

2. **A Survey of Machine Learning Algorithms Based Forest Fires Prediction and Detection Systems**

F. Abid

Technical Papers:

Emerging Methods for Early Detection of Forest Fires Using Unmanned Aerial Vehicles and Lorawan Sensor Networks

Publisher: IEEE, 15 November 2018

Existing Solution:

The video input is captured from the camera, and the other inputs such as wind speed, wind directions, and IR image sensing are calculated using the sensors mounted on the UAV for navigation. These images are provided as input to the deep learning models, and it checks for the

existence of the fire. The region is predicted clearly since there is a possibility of more projections of the images provided to the model due to the 3D modeling. Further detection is made, and the details are stored in the database for further.

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