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Project Name	Emerging Methods for Early Detection of Forest Fires
Maximum Marks	2 Marks

Emerging Methods for Early Detection of Forest Fires

Problem statement

       Forest fires are a major environmental issue, creating economic and ecological damage while endangering human lives. There are typically about 100,000 wildfires in the United States every year. Over 9 million acres of land have been destroyed due to treacherous wildfires. It is difficult to predict and detect Forest Fire in a sparsely populated forest area and it is more difficult if the prediction is done using ground-based methods like Camera or Video-Based approach. Satellites can be an important source of data prior to and also during the Fire due to its reliability and efficiency. The various real-time forest fire detection and prediction approaches, with the goal of informing the local fire authorities

Literature survey

TREADITIONAL METHODS

     Forest fire detection and prevention are real problems faced by a number of countries. Different methods have been stated for monitoring the emergence of fires.

A. Watch Towers

In earlier days, the forest fires were detected by manual observations with watch towers installed in the isolated areas of forest. Though this method was accurate, it was not preferred due to manual restrictions.

B. Satellite

Based Systems Earth orbiting satellites have been used for detection of forest fires. Unfortunately, these satellites can provide the images of regions of the earth's surface every two days which is a very long time for fire scanning. Also the weather conditions can affect the quality of satellite images.

C. Optical Sensors and Digital Camera

The use of optical sensors only provides a line of sight vision, where the vision can be blocked by high trees or hills. The Camera surveillance systems were also inefficient for forest fire detection because of short distance ranges.

D. Wireless Sensor Networks

The sensors sense physical as well as chemical parameters. The sensors can operate in a self-healing and self-organizing wireless networking environment. The major problem with this system is that there are high chances of false alarms due to lack of proper processing of the sensor data. In this paper, we propose a method which processes the sensor data to predict fire accurately. The sensor nodes are provided with Wi-Fi devices and tested on grassy areas to sense temperature, humidity, pressure and various other physical parameters and send this data back to the base station. At the base station, the data is processed by a machine learning agent to give alarm.